cctv

2006

product guide

ZARJA ELEKTRONIKA
proizvodnja, montaža, inženiring in projektiranje
sistemov in naprav za tehnično zaščito

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computar

GANZ

CBC (EUROPE) Ltd.

Manufacturers of computar and GANZ CCTV products

Why choose Computar lenses and Ganz CCTV products?

- **Performance that often exceeds specifications.**

Fact, over specified products once installed, frequently do not give the expected performance and lead to End User disappointment and complaints.

- **Exceptional reliability backed up by 3 years warranty.**

Fact, site downtime is a major headache for any company. Service calls are inconvenient and expensive. Consistent breakdowns can ultimately result in loss of reputation and business.

- **Wide choice, a product to suit most applications.**

Fact, buyers can spend hours dealing with many suppliers looking for many products. The result frequently ends up in a logistical, accounting and supporting nightmare. Often, the buyer might be penalised by higher prices due to an overall spread of spending instead of concentrating upon a single supplier.

- **Consistency, innovation, and compatibility**

Fact, thousands of pounds can be wasted on engineering if products are either not compatible or consistent from one release to another. This is especially important in site upgrades, or where multiple installations over a period of time are necessary.

What do you get when dealing with CBC (EUROPE) Ltd?

- **Friendly, professional Sales and technical support.**
- **Exceptional stock and delivery.**
- **A supplier that will always go the extra mile to accommodate our customer needs.**

With over 40 years of CCTV manufacturing experience, CBC (Europe) Ltd is one of the most highly regarded names in the industry. We take pride in always providing products that represent excellent value for money and services that are second to none. However, we do not rest on our laurels and continually seek to improve everything we do. Our fine reputation is based upon protecting your reputation. If you are looking at CBC (Europe) Ltd for the first time, then we warmly welcome the opportunity to be of service to you.

The 2006 catalogue is easier to read when compared to previous releases, has more application guidance and is packed full of new products. We feel that you will be pleased with its new look and contents.

Best wishes,

Geoff Bowers
CCTV Division Manager

All Computar and Ganz products are CE certified

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Sales and information +44 (0) 208 732 3300

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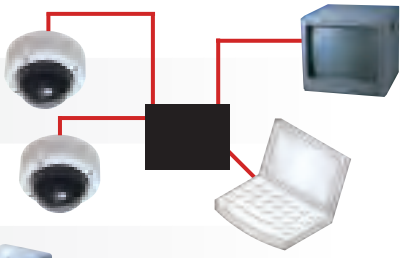

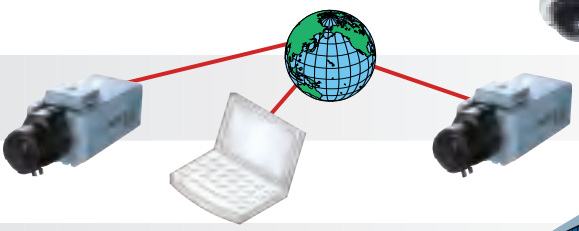

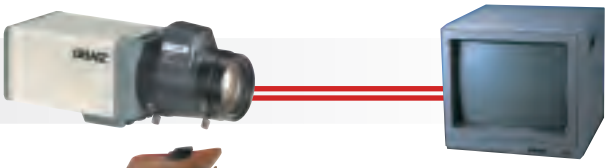

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2mm to 36mm

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8mm to 50mm

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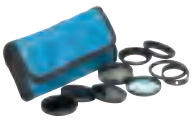


VARIFOCAL LENSES

1/2" & 1/3" Varifocal Lenses

Varifocal lenses offer the maximum flexibility for the CCTV installer as they can be adjusted to match the exact scene required by the end user. Once obtained, the view can be fixed by means of the lens locking screws. Computar offer one of the largest ranges of varifocal lenses from a 1.8mm (almost fish eye) to 50mm for close up views. Whatever the application Computar has a varifocal to match your needs.

IR Corrected Varifocal

Commonly known as Day/Night lenses. All of the features of a traditional varifocal lens are available but with the added benefits of IR correction. These lenses are manufactured with a special E.D. glass and lens coating. This combination allows the lens to deliver perfect focus under normal lighting and also under IR illumination.

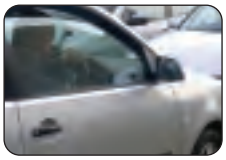
In general, Computar's range of varifocal lenses either in standard or IR versions offers the installer an extremely wide choice of lenses to match the ever changing installation applications.

FOCAL LENGTH	RANGE	MANUAL (M)	DIRECT DRIVE (DD)	VIDEO DRIVE (VD)
1.8mm-3.6mm		T2Z1816CS	TG2Z1816FCS	TG2Z1816AFCS
2.3mm-6mm		T3Z2312CS	TG3Z2312FCS	TG3Z2312AFCS
2.7mm-8mm		T3Z2710CS	TG3Z2710FCS	TG3Z2710AFCS
2.8mm-6mm		T2Z2814CS-2	TG2Z2814FCS-2	TG2Z2814AFCS-2
2.8mm-12mm		T4Z2813CS	TG4Z2813FCS	TG4Z2813AFCS
3.5mm-8.0mm		T2Z3514CS-2	TG2Z3514FCS-2	TG2Z3514AFCS-2
3.5mm-10.5mm		T3Z3510CS	TG3Z3510FCS	TG3Z3510AFCS
3.5mm-10.5mm		T3Z3510CS-IR	TG3Z3510FCS-IR	TG3Z3510AFCS-IR
4.5mm-12.5mm		H3Z4512CS	HG3Z4512FCS	HG3Z4512AFCS
4.5mm-12.5mm		H3Z4512CS-IR	HG3Z4512FCS-IR	HG3Z4512AFCS-IR
5mm-50mm		T10Z0513CS	TG10Z0513FCS	TG10Z0513AFCS
8.5mm-40mm		T5Z8513CS-IR	TG5Z8513FCS-IR	TG5Z8513AFCS-IR
10.0mm-30mm		H3Z1014CS	HG3Z1014FCS	HG3Z1014AFCS

3.5mm

8mm

12mm



30mm

50mm

Benefits of Varifocal Lenses

- **Glass optics for a high resolution image**
- **Suitable for all Colour and Monochrome cameras**
- **Aspherical Range**
- **IR Corrected Range**
- **Spot filter on all auto Iris versions**
- **Slip ring for easy installation**
- **Wide F range for perfect pictures from low light to extreme sunshine**

F STOP	ANGLE OF VIEW (HORIZONTAL)	TYPE	FORMAT	DIMENSIONS (WxLxD)mm	WEIGHT*
1.6 - 360	144.2-79.4°	STANDARD	1/3"	37.4x42.6x51	78g
1.2 - 360	114.8-48.2°	ASPHERICAL	1/3"	38.5x48x48.8	78g
1.0 - 360	100.0-36.1°	ASPHERICAL	1/3"	38.5x48x48.8	67g
1.4 - 360	96.0-47.2°	STANDARD	1/3"	33.5x42.6x43.5	50g
1.3 - 360	98.2-23.8°	ASPHERICAL	1/3"	37.5x48x56	69g
1.4 - 360	77.5-35.4°	STANDARD	1/3"	33.5x42.6x43.5	48g
1.0 - 360	81.7-27.2°	ASPHERICAL	1/3"	38.5x48x48.8	67g
1.0 - 360	81.6-27.2°	IR	1/3"	38.5x48x48.8	65g
1.2 - 360	81.6-30.0°	ASPHERICAL	1/2"	38.5x48x48.8	65g
1.2 - 360	81.6-30.0°	IR	1/2"	38.5x48x48.8	68g
1.3 - 360	51.8-5.6°	ASPHERICAL	1/3"	41.7x57.5x57.7	125g
1.3 - 360	33.5-7.1°	IR	1/3"	41.7x57.5x62.9	126g
1.4 - 360	35.8-12.5°	STANDARD	1/2"	41.7x57.5x57.7	140g

<F360 Low quality lens, poor and no contrast

Other make of lens

Standard

F360 for perfect pictures in extreme sunlight

Computar lens

Aspherical

F1.0 Perfect images in low light applications

Computar lens

Day/Night (IR)

No focal shift under IR Illumination

Computar lens

FIXED FOCAL LENGTH LENSES

Including Aspherical Fixed Focus

Fixed focal length lenses offer the CCTV installer fixed images of a scene. These lenses are an ideal solution when the views are known such as a Fire Exit door or an entrance foyer. All Computar fixed focal lenses have a manual adjustment of the focus for crisp clear images and locking screws to hold position.

Computar offer an extremely wide range of fixed focal lenses for all types of applications and installations.

Aspherical lenses

Aspherical lenses are manufactured to allow more light through the lens for much clearer and crisper images. Because of this they are much better in low light conditions.

FOCAL LENGTH (mm)	FIXED IRIS	MANUAL(M)	DIRECT DRIVE (DD)	VIDEO DRIVE (VD)	F STOP
2.0			TG2010FCS-HSP	TG2010AFCS-HSP	1.0-360
2.3		T2314FICS-3	TG2314FCS-3	TG2314AFCS-3	1.4-360
2.6		T2616FICS-3	TG2616FCS-3	TG2616AFCS-3	1.6-360
2.6			HG2610FCS-HSP	HG2610AFCS-HSP	1.0-360
2.6		H2616FICS-3	HG2616FCS-3	HG2616AFCS-3	1.6-360
3.6	H3616FI				1.6
3.6		H3616FICS-3	HG3616FCS-3	HG3616AFCS-3	1.6-360
3.8			HG3808FCS-HSP	HG3808AFCS-HSP	0.8-360
4.0	T0412CS-3				1.2
4.0		T0412FICS-3	TG0412FCS-3	TG0412AFCS-3	1.2-360
4.5		H4514FICS-3	HG4514FCS-3	HG4514AFCS-3	1.4-360
6.0	H0612FI				1.2-16C
6.0		H0614FICS-3	HG0614FCS-3	HG0614AFCS-3	1.4-360
6.0			HG0608FCS-HSP	HG0608AFCS-HSP	0.8-360
8.0	T0812CS-3				1.2
8.0		T0812FICS-3	TG0812FCS-3	TG0812AFCS-3	1.2-360
8.0			HG0808FCS-HSP	HG0808AFCS-HSP	0.8-360
12.0	H1212FI				1.2
12.0		H1214FICS	HG1214FCS-3	HG1214AFCS-3	1.4-360
12.0			HG1208FCS-HSP	HG1208AFCS-HSP	0.8-360
18.0			HG1814FCS	HG1814AFCS	1.4-125
36.0			HG4018FCS	HG4018AFCS	1.8-125

Benefits of Aspherical & Fixed Focal Length Lenses

- **Glass optics for a high resolution image**
- **Suitable for all Colour and Monochrome cameras**
- **Aspherical Range**
- **Spot filter on all auto Iris versions**
- **Slip ring for easy installation**
- **Wide F range for perfect pictures from low light to extreme sunshine**
- **Simple to install and set up**

ANGLE OF VIEW(H)	TYPE	FORMAT	MOUNT	DIMENSIONS(WxLxD)mm	WEIGHT
122.6°	ASPHERICAL	1/3"	CS	48x58x58.2	148g
113.3°	STANDARD	1/3"	CS	32x39.8x35.4	48g
98.7°	STANDARD	1/3"	CS	32x39.8x34.7	50g
122.8°	ASPHERICAL	1/2"	CS	54x61x55	143g
127.9°	STANDARD	1/2"	CS	32x39.8x34.7	51g
92.6°	STANDARD	1/2"	C	ø39x28.9	50g
92.6°	STANDARD	1/2"	CS	32x39.8x33	44g
89.2°	ASPHERICAL	1/2"	CS	45x56.8x52.5	151g
63.9°	STANDARD	1/3"	CS	ø31x30.5	25g
63.9°	STANDARD	1/2"	CS	32x39.8x33	42g
79.6°	STANDARD	1/2"	CS	32x39.8x33	42g
57.2°	STANDARD	1/2"	C	ø39x33.5	55g
58.3°	STANDARD	1/2"	CS	32x39.8x33	42g
56.7°	ASPHERICAL	1/2"	CS	42x56.8x48.5	150g
34.7°	STANDARD	1/3"	CS	ø31x27.8	30g
34.7°	STANDARD	1/3"	CS	32x39.8x33	43g
44.9°	ASPHERICAL	1/2"	CS	42x56.8x43	130g
29.5°	STANDARD	1/2"	C	ø39x31.6	45g
30.4°	STANDARD	1/2"	CS	32x39.8x33	35g
31.2°	ASPHERICAL	1/2"	CS	42x56.8x54.5	146g
19.9°	STANDARD	1/2"	CS	42x51.5x36.5	73g
10.6°	STANDARD	1/2"	CS	42x51.5x36.5*	76g

*Weight of the lenses above are based on the heaviest lens in the series. Please refer to the Computar Lens catalogue for actual weight information.

ZOOM LENSES

Including Manual and Motorised Zoom Lenses

Zoom lenses differ from varifocals since once they have been set up by the CCTV installer, they will always stay in focus no matter how often the zoom ratio is changed. Zoom lenses give you the ability to view and get close ups of objects to highlight details or identification even when the object is some distance away. These are ideal for covert applications where your camera cannot be installed close to your target.

Manual Zoom lenses

Computar's manual zoom lenses allow the CCTV installer to manually adjust the focal length, iris and focus. Ideal to view areas where you require high quality images with the flexibility of local adjustment. Applications include inspection, machine vision and covert.

Motorised Zoom Lenses

Computar's Zoom lenses are predominantly used in conjunction with pan & tilt units (movable cameras) when the system is controlled remotely by an operator who can automatically adjust the picture to the desired view. These lenses are ideal when covering large areas, but still require the ability to alter the view for identification of images like city centres, Industrial sites, Car Parks and areas of low light.

ZOOM RATIO	FOCAL LENGTH (MM)	MANUAL FOCUS & IRIS (MI)	DIRECT DRIVE(DD)	PRE-SET VERSION (DD)	VIDEO DRIVE(VD)	PRE SET VERSION (VD)
6 x Zoom	5.7-34.2	T6Z5710-CS				
6 x Zoom	8-48	H6Z0812				
6 x Zoom	5.7-34.2		T6Z5710AIDC-CS		T6Z5710AIVD-CS	
6 x Zoom	8-48		H6Z0812AIDC		H6Z0812AIVD	
6 x Zoom	5.7.34.2		T6Z5710DC-CS	T6Z5710PDC-CS	T6Z5710AMS-CS	T6Z5710AMSP-CS
6 x Zoom	8-48		H6Z0812DC	H6Z0812PDC	H6Z0812AMS	H6Z0812AMSP
10 x Zoom	5.7-57		T10Z5712DC-CS	T10Z5712PDC-CS	T10Z5712AMS-CS	T10Z5712AMPS-CS
10 x Zoom	8-80		H10Z0812DC	H10Z0812PDC	H10Z0812AMS	H10Z0812AMSP
10 x Zoom	12-120		H10Z1218DC	H10Z1218PDC	H10Z1218AMS	H10Z1218AMSP
16 x Zoom	7.5-120		H16Z7516DC	H16Z7516PDC	H16Z7516AMS	H16Z7516AMSP
21 x Zoom	5.8-121.8		T21Z5815DC-CS	T21Z5815PDC-CS	T21Z5815AMS-CS	T21Z5815AMSP-CS
30 x Zoom	10-300				H30Z1015AMS	H30Z1015AMSP
34 x Zoom	5.5-187		T34Z5518DC-CS	T34Z5518PDC-CS	T34Z5518AMS-CS	T34Z5518AMSP-CS
16 x Zoom	7.5-120	IRIS OVERRIDE AVAILABLE			H16Z7516AMSR	H16Z7516AMSPR
34 x Zoom	5.5-187	IRIS OVERRIDE AVAILABLE			T34Z5518AMSR-CS	T34Z5518AMSPR-CS
30x Zoom	10-300	IRIS OVERRIDE AVAILABLE			H30Z1015AMSR	H30Z1015AMSPR
16 x Zoom	7.5-120	IR CORRECTED			H16Z7516AMS-IR	H16Z7516AMSP-IR
16 X Zoom	7.5-120	IR CORRECTED & IRIS OVERRIDE			H16Z7516AMSR-IR	H16Z7516AMSPR-IR

Benefits of Zoom Lenses

- **Glass optics for a high resolution image**
- **Suitable for all Colour and Monochrome cameras**
- **Up to 300mm zoom lens available**
- **IR Corrected Range**
- **Spot filter on all auto Iris versions**
- **Slip ring for easy installation**
- **Wide F range for perfect pictures from low light to extreme sunshine**

Standard view | 6:1 | 10:1 | 21:1 | 30:1

F STOP	ANGLE OF VIEW (H)	ZOOM TYPE	FORMAT	DIMENSIONS (W x L x D)MM	WEIGHT*
1.0-16C	45.9-8.1°	Manual	1/3" CS	ø55.2x82.5	290g
1.2-16C	44.6-8°	Manual	1/2" C	ø51.75x97	305g
1.0-360	45.9-8.1°	Manual	1/3" CS	53x64x82.5	295g
1.2-560	44.6-8°	Manual	1/2" C	52.6x64x97	300g
1.0-360	45.9-8.1°	Motorised	1/3" CS	68.5x76.3x82.5	490g
1.2-560	44.6-8°	Motorised	1/2" C	66x73.5x97	460g
1.2-560	44.9-4.8°	Motorised	1/3" CS	68.5x76.3x88	510g
1.2-560	44-4.7°	Motorised	1/2" C	70x81x123.5	710g
1.8-560	29.4-3.1°	Motorised	1/2" C	70x81x123.5	710g
1.6-560	46.6-3.2°	Motorised	1/2" C	82x97.4x149	1090g
1.6-560	44.8-2.3°	Motorised	1/3" CS	70x81x126.5	740g
1.5-560	35.5-1.25°	Motorised	1/2" C	125x144.5x246.5	3220g
1.8-560	46.6-1.5°	Motorised	1/3" CS	82x97.4x160	1190g
1.6-560	46.6-3.2°	Motorised	1/2" C	82x97.4x149	1070g
1.8-560	46.6-1.5°	Motorised	1/3" CS	82x97.4x160	1180g
1.5-560	35.5-1.25°	Motorised	1/2" C	125x144.5x246.5	3225g
1.6-560	46.6-3.2°	Motorised	1/2" C	82x97.4x161.5	1180g
1.6-560	46.6-3.2°	Motorised	1/2" C	82x97.4x161.5	1215g

*Weight of the lenses above are based on the heaviest lens in the series. Please refer to the Computar Lens catalogue for actual weight information.

MEGA PIXEL

Mega Pixel & Factory Automation

The Megapixel lenses (high definition) are designed to capture the full resolution of megapixel cameras, providing a high contrast and a sharp picture.

The Wide-aperture (F1.4) design of the Megapixel lenses help to achieve clear images under low light levels. These lenses also provide good image recognition accuracy that is achieved by the reduction of distortion and improvement of illumination uniformity over the CCD sensor. Another important feature is the robust enclosure that is resistant to vibrations and shocks making it ideal for use in Video imaging equipment and machine vision applications.

FOCAL LENGTH (mm)	MANUAL	F STOP	ANGLE OF VIEW (HORIZONTAL)	TYPE
8	M0814-MP	1.4-16C	56.3°	High Definition
12	M1214-MP	1.4-16C	40.4°	High Definition
16	M1614-MP	1.4-16C	30.8°	High Definition
25	M2514-MP	1.4-16C	20.0°	High Definition
50	M5018-MP	1.8-16C	10.5°	High Definition
12-36mm	M3Z1228C-MP	2.8-16C	41.0-13.6°	High Definition

Machine vision application

Benefits of Mega Pixel & Factory Automation Lenses

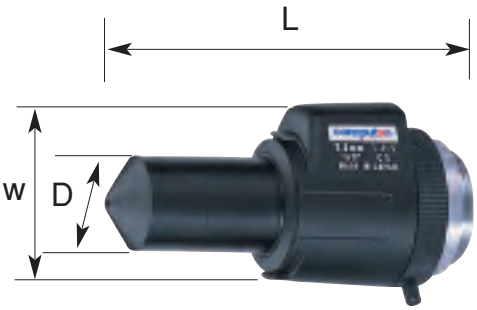
- **High resolution and contrast**
- **Glass optics for a high resolution image**
- **Locking screws on Focus and Iris rings**
- **Perfect for Mega Pixel Cameras**
- **Robust enclosure**
- **Larger aperture**

FORMAT	MOUNT	DIMENSIONS (WxL)mm	WEIGHT
2/3"	C	ø36.5x79.5(L)	70g
2/3"	C	ø41.6x53(L)	65g
2/3"	C	ø33.5x38.1(L)	65g
2/3"	C	ø33.5x 36(L)	75g
2/3"	C	ø33.5x28.2(L)	90g
2/3"	C	ø48x98.5(L)	105g

PINHOLE & SPECIALIST LENSES

Telecentric & Macro Lenses

Pinhole lenses for security and industrial applications. The lenses are designed for the highest quality images where the viewing area is no more than a pinhole. The lenses can be used on both colour and monochrome cameras



FOCAL LENGTH (mm)	PRODUCT CODE	F STOP	AOV (HORIZONTAL)	TYPE	FORMAT	DIMENSIONS WxLxD(mm)	WEIGHT
2.6	T2625CS-P	2.5-32C	83.2°	PINHOLE STRAIGHT	1/3" CS	ø34.5x73.5	80g
2.6	TG2625FCS-P	2.5-360	83.2°	PINHOLE STRAIGHT	1/3" CS	34.5x39.8x73.5	82g
2.6	TG2625AFCS-P	2.5-360	83.2°	PINHOLE STRAIGHT	1/3" CS	34.5x39.8x73.5	85g
4.0	H0425S	2.5-32C	76.2°	PINHOLE STRAIGHT	1/2" C	ø33x86.7	100g
55	TEC-M55	2.8-32C	9.2°	TELECENTRIC	2/3" C	ø53x92.9	320g
0.084-0.84*	MLH-10X	5.6-32C	18-3.6°	MACRO		ø48x98.5	233g

*Maximum magnification. T2625FCS-P Direct Drive Auto Iris lens. T2625AFCS-P Video Drive Auto Iris lens.

LENS ACCESSORIES

& Installation Aids

PRODUCT CODE	DESCRIPTION	
FSK	Filter Set Up Kit	Filter kit to help with the set up of cameras
VM 300	View Finder	View Finder to help with lens selection on site. You see what the lens will see.
VM100	Extension Tube Kit	40, 20, 10, 5, 1, 0.5mm
VM 400	C/CS Mount Converter	
DL00	Dummy Lens	
EX1.5C	C Mount 1.5x Extender	
EX2C	C Mount 2x Extender	
EX1.5CS	CS Mount 1.5x Extender	
EX2Cs	CS-Mount 2x Extender	

LENS DISTANCE SELECTOR

Varifocals

Scene Width (m)

Object Distance (m)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
15	-	36.0	24.0	18.0	14.4	12.0	10.3	9.0	8.0	7.2	6.5	6.0	5.5	5.1	4.8	4.5	4.2	4.0	3.8
14	-	33.6	22.4	16.8	13.4	11.2	9.6	8.4	7.5	6.7	6.1	5.6	5.2	4.8	4.5	4.2	4.0	3.7	3.5
13	-	31.2	20.8	15.6	12.5	10.4	8.9	7.8	6.9	6.2	5.7	5.2	4.8	4.5	4.2	3.9	3.7	3.5	3.3
12	-	28.8	19.2	14.4	11.5	9.6	8.2	7.2	6.4	5.8	5.2	4.8	4.4	4.1	3.8	3.6	3.4	3.2	3.0
11	52.8	26.4	17.6	13.2	10.6	8.8	7.5	6.6	5.9	5.3	4.8	4.4	4.1	3.8	3.5	3.3	3.1	2.9	-
10	48.0	24.0	16.0	12.0	9.6	8.0	6.9	6.0	5.3	4.8	4.4	4.0	3.7	3.4	3.2	3.0	2.8	-	-
9	43.2	21.6	14.4	10.8	8.6	7.2	6.2	5.4	4.8	4.3	3.9	3.6	3.3	3.1	2.9	-	-	-	-
8	38.4	19.2	12.8	9.6	7.7	6.4	5.5	4.8	4.3	3.8	3.5	3.2	3.0	-	-	-	-	-	-
7	33.6	16.8	11.2	8.4	6.7	5.6	4.8	4.2	3.7	3.4	3.1	2.8	-	-	-	-	-	-	-
6	28.8	14.4	9.6	7.2	5.8	4.8	4.1	3.6	3.2	2.9	-	-	-	-	-	-	-	-	-
5	24.0	12.0	8.0	6.0	4.8	4.0	3.4	3.0	-	-	-	-	-	-	-	-	-	-	-
4	19.2	9.6	6.4	4.8	3.8	3.2	-	-	-	-	-	-	-	-	-	-	-	-	-
3	14.4	7.2	4.8	3.6	2.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	9.6	4.8	3.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1	4.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

LENS DISTANCE SELECTOR

Zooms

Scene Width (m)

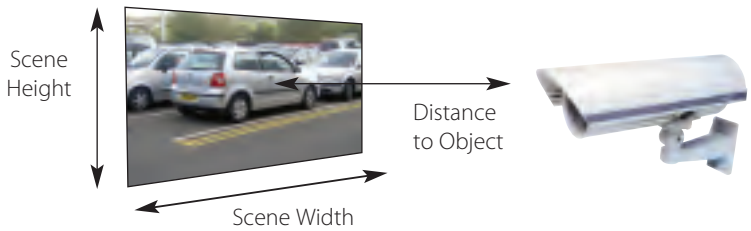
Object Distance (m)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
500	-	-	-	-	-	-	-	300	267	240	218	200	185	171	160	150	141	133	126
400	-	-	-	-	-	-	274	240	213	192	175	160	148	137	128	120	113	107	101
300	-	-	-	-	288	240	206	180	160	144	131	120	111	103	96	90	85	80	76
200	-	-	-	240	192	160	137	120	107	96	87	80	74	69	64	60	56	53	51
150	-	-	240	180	144	120	103	90	80	72	65	60	55	51	48	45	42	40	38
120	-	288	192	144	115	96	82	72	64	58	52	48	44	41	38	36	34	32	30
100	-	240	160	120	96	80	69	60	53	48	44	40	37	34	32	30	28	27	25
70	-	168	112	84	67	56	48	42	37	34	31	28	26	24	22	21	20	19	18
50	240	120	80	60	48	40	34	30	27	24	22	20	18	17	16	15	14	13	13
30	144	72	48	36	29	24	21	18	16	14	13	12	11	10	10	9	8	8	8
10	48	24	16	12	10	8	7	6	-	-	-	-	-	-	-	-	-	-	-

Selecting A Lens

1.) Determine the scene width (actual size of area & view required)
2.) Calculate the distance between the scene and the camera
3.) Read off the focal length of lens required from the chart

Example Scene Width (SW) =6m
Object Distance =10m
Focal length of Lens required = 8mm

Scene Height (SH)
=75% x Scene Width (SW)



LIFE THROUGH A LENS

The most important part of any CCTV system is probably the lens. To help understand why, and how it works, let's firstly think in human terms. A person's eye gathers information (light) from a scene and this information is then sent from the front of the eye to the back, where it is focused onto the retina. The retina in turn converts the light into electrical pulses to the brain and the brain turns this into what we see.

A camera's lens operates in the same way as the human eye. It gathers information (light) from a scene and then this information is sent from the front of the lens to the back, where it is focused onto the CCD chip of the camera. The CCD chip converts the light into electrical signals for the camera's electronics to produce a picture with.

Since the information gathered by the lens ultimately makes up the picture we see, it's important that a number of factors are observed:

- High quality glass optics to pass the full light spectrum
- A wide aperture range f stop to cope with either low light or bright conditions
- Focal lengths to meet your requirements
- Good iris control to cope with changing light conditions.

What we see

The focal length of a lens is directly related to the angle of view or scene. Short focal lengths give a wide angle of view and as the focal length increases the view of the camera becomes narrower. We tend to refer to a lens with a 'normal' angle of view as similar to that seen by the human eye i.e. an angle in the order of 35°. Measured in millimetres, the focal length refers to the distance between the centre of the lens to the surface of the camera CCD chip. Long focal lengths have small angles of view, while short focal lengths have wide angles of view.

With a fixed focus lens (used to view door entrances, etc), the engineer cannot adjust the view you see – only the focus can be adjusted.

Vari-focal lenses allow the engineer to manually alter the view seen, so that it matches the end user's exact requirements. This provides an ideal margin of error if the detailed specifications are not available at time of installation.

Zoom lenses are normally used in conjunction with pan/tilt/zoom (PTZ) cameras that are remotely controlled from a central location. The operator can therefore automatically zoom in or out to adjust his/her view.

Changing light conditions

Just like the human eye, the iris of a CCTV lens opens and closes depending on the light level.
It will open fully at night-time or when it is dark and close right down to almost fully shut in bright sunny conditions. The iris controls the amount of light that is passed through the lens on to the camera chip, allowing the camera to produce a crisp, clear picture.

If we allow too much light into the camera the picture will 'white out', producing blobs of white on the screen. But if we do not allow enough light into the camera the picture will be very dark on the screen and we struggle to identify anything. Manual iris lenses are normally used indoors where the light levels are constant. The engineer will adjust the iris level at time of installation to get the best picture to suit the lighting conditions.

There are two types of auto iris: direct drive and video drive. Both of these adjust automatically to changing lighting conditions and are mostly used in external applications to cope with fluctuating lighting conditions. Direct drives automatically adjust the iris so the correct amount of light is passed through the lens to the camera. The camera, not the lens, controls the amount of light that is passed through the lens to the camera. The camera always tells the lens how much light it needs. Direct drive auto-irises are popular as they require very little set-up by the engineer and they all come pre-plugged.

Video drives are becoming less common due to the advances in direct drive lenses. They require a certain amount of set-up by the engineer and allow greater adjustment of light levels. However, they do not come pre-plugged.

LIFE THROUGH A LENS

F-stops explained

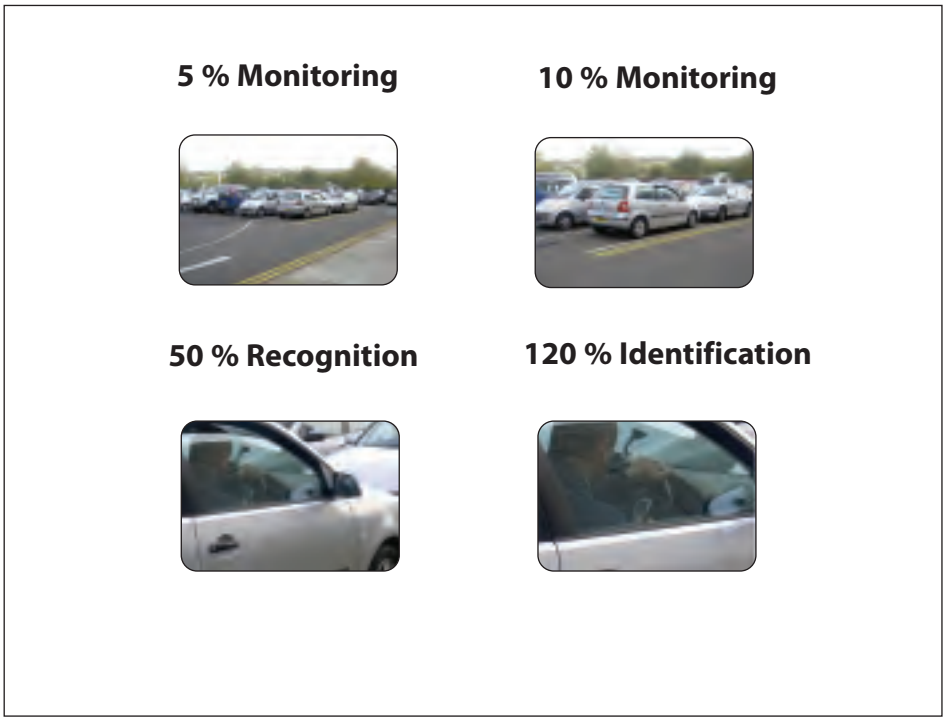
The F-stop indicates how far the camera's iris (or aperture) is open. For low light applications you must have a small F Stop number such as F0.8, F1.0, F1.2 or F1.4. These F-stop numbers pass the maximum amount of light through the lens, providing better pictures in low light conditions. Meanwhile, for bright, sunny conditions you need a high upper F-stop such as F360 or F560, to give you a clear and crisp picture.

When choosing a lens, make sure it has a wide range of F stops – typically all general purpose CBC lenses range from F1.4 to F360, while our low light Aspherical lenses range from F1.0 to F360. Aspherical lenses have special optics that allow the lens to have lower F-stop numbers for greater low light performance.

Operational Requirements

When selecting your camera views, please consider Home Office guidelines relating to the Monitoring, Detection, Recognition and Identification of the target on the monitor screen:

• Monitor - The target size of a subject for monitoring is generally 5% of the monitor screen – ideal for monitoring human movements or vehicle traffic flows.
• Detect - To obtain best results for electronic detection purposes the picture size of the target should be no less than 10% of screen size.
• Recognise – For recognition purposes, the picture size on the monitor should be no less than 50% of the screen. This value can be used to recognise a target such as a 'known person'.
• Identify - In order to gain a picture (on tape, disk or hard copy) of evidential quality, it is recommended that the target size should be 120% of the screen size. This means, for example, the face and body of a grown human to the knees but not the full height inclusive of the legs!



20-23 **Static Domes**

24-27 **Lens Integrated Cameras**

28-35 **CS Mount Camera**

37 **Accessories**

38-39 **Camera Pre Build**

40-41 **Mega Pixel High Definition**

42-48 **PTZ High Performance Domes**

49-51 **Technical/Application Guide**

Cameras at a glance

Indoor and outdoor static dome range

Spot camera

IR Camera

Marine

PCB

AF Zoom

Super Hi Res

WDR

Day/Night

Colour & Mono

Short Body

Bracket

PSU's

Colour & Mono

Day/Night

Day/Night
& Infra Red

Number plate
recognition

Camera

Dome

Indoor

Outdoor

Indoor

Outdoor

ZC-D3000 DOME SERIES

High Resolution Colour, Mono and Colour/Mono (D/N) Domes with Integrated Varifocal Lens

Indoor

Indoor/Outdoor
Vandal Resistant

Perfect Partners

CPSU-24-1.0II

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The ZC-D3000 range is available as either colour, mono or as a combination (Day & Night). All units come with low voltage input, allowing either 12Vdc or 24Vac. The dome camera is complete with either 2.8-10.0mm or 4.0-7.5mm (Day/Night) auto iris high speed varifocal lens, providing optimum performance in demanding lighting conditions. Further setup can be achieved by selecting the switches on the camera body.

The ZC-DT3000 Vandal Resistant Dome series provide a perfect solution for surveillance projects where the cameras are prone to abuse. The dome is made of toughened glass reinforced plastic, the alloy body is weatherproof with an IP67 rating and is suitable for both indoor and outdoor applications.

Ordering Codes:

ZC-D3210PHA	1/4" Col, 480 TVL, 0.5 lux, 2.8-10mm Vari. lens
ZC-D3210CHA	1/4" Mono,580TVL, 0.24 lux, 2.8-10mm Vari.lens
ZC-DN3048PHA	1/4" Col/Mono, 480 TVL, 0.28 lux(Col) 0.09 lux (Mono) 4.0-7.5mm Varifocal lens
ZC-D2550PHA	1/4" Col, 480 TVL, 1.8 lux, 5-50mm Varifocal lens
ZC-DT3210PHA	1/4" Col, 480 TVL, 0.5 lux, 2.8-10mm Varifocal lens, Vandal
ZC-DT3210CHA	1/4" Mono, 580 TVL, 0.24 lux, 2.8-10mm Varifocal lens, Vandal
ZC-DNT3048PHA	1/4" Col/Mono, 480 TVL, 0.28 lux(Col) 0.09 lux (Mono) 4.0-7.5mm Varifocal lens, Vandal

MODEL	ZC-D3210PHA	ZC-D3210CHA	ZC-DN3048PHA
MODEL (VANDAL)	ZC-DT3210PHA	ZC-DT3210CHA	ZC-DNT3048PHA
TV System	Pal	CCIR	Pal
Focal Length	2.8-10mm	2.8-10mm	4.0-7.5mm
Max aperture Ratio	1:1.2	1:1.2	1:1.6
Angle of View	D: 105.8° ~ 27.0° H: 78.2° ~ 21.6° V: 55.8° ~ 16.2° (Col/B&W) D: 67.3° ~ 36.4° H: 52.6° ~ 29.0° V: 38.8° ~ 21.7° (Day/Night)		
Image Sensor	1/4" IT CCD		
Effective Elements	752 (H) x 582 (V)		
Scanning Frequency	15.625kHz / 50.0Hz		
Iris	F1.2 - 360	F1.2 - 360	F1.6 - 360
Resolution (Horizontal)	480 TVL	580 TVL	480 TVL
Minimum Illumination 100 IRE	0.5 lux	0.24 lux	0.28 lux (Col) 0.09 lux (Mono)
S/N Ratio	> 50dB (AGC gain : minimum)		
Gamma Characteristics	0.45		
Sync System	INT./L.L.		
Electric Shutter	1/50 sec. Fixed (Flickerless:OFF) 1/120 sec. Fixed (Flickerless: ON)		
White Balance	ATW	_	ATW
Power Supply	12 V DC/ 24 V AC		
Power Consumption DC 12V	2.0W	1.5W	2.0W
AC 24V	2.5W	2.0W	2.5W
Ambient Temperature	Operation : -10°C ~+50°C / Storage : -20°C ~+60°C		
Ambient Humidity	Operation: 85% RH max. / Storage : 95% RH max.		
External Dimensions	128(D)mm x 101 (H)mm		
Weight (approximate)	400g, 1054g (Vandal)		
Adjustment Volume	DC iris level, Line phase		

KEY FEATURES:

- 1/4" IT CCD
- High Resolution
- Integrated varifocal lens
- Integrated 5-50mm lens option available (ZC-D2550)
- Line lock with phase adjustment
- Backlight compensation
- Automatic gain control
- Easy adjustment with the unique 3 axis gimble
- Toughened, glass reinforced plastic dome with alloy body (vandal range)
- Weatherproof IP67 alloy body (vandal range)

CDV EXT/INT VANDAL DOME SERIES

High Resolution Colour/Mono (D/N) and Mono Vandal Proof Domes with Integrated Varifocal Lens

The CDV Vandal Resistant Dome range provide a perfect solution for surveillance projects where the cameras are prone to abuse. The dome is made of a glass reinforced nylon body and polycarbonate bubble with an IP65 rating. It is suitable for both indoor and outdoor applications. The domes are available as either Day/Night or Mono. All units come with low voltage input, allowing either 12Vdc or 24 Vac.

The Day/Night and Mono dome camera is complete with 3.0-9.0mm auto iris high speed varifocal lens providing optimum performance in demanding lighting conditions.

Further setup can be achieved by selecting the switches on the camera body. These include backlight compensation, AGC on/off, auto white balance/auto white tracing. Wall mount and Ceiling mount options available.

Ordering Codes:

CDVNH-39CM 1/3" Col/Mono, 480 TVL, 0.6 lux(Col) 0.3 lux (Mono), 3-9mm Vari. lens, Vandal, Ceiling mount

CDVNH-39WM 1/3" Col/Mono, 480 TVL, 0.6 lux(Col) 0.3 lux (Mono), 3-9mm Varifocal lens, Vandal, Wall mount

CDVH-39CM 1/3" Mono, 570 TVL, 0.3 lux), 3-9mm Varifocal lens, Ceiling mount

CDVH-39WM 1/3" Mono, 570 TVL, 0.3 lux), 3-9mm Varifocal lens, Wall mount

Ceiling Mount

Wall Mount

Perfect Partners

CPSU-12-0.5II
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MODEL	CDVNH-39	CDVH-39
TV System	Pal	CCIR
Focal Length	3.0-9.0mm	
Image Sensor	1/3" IT CCD	
Angle of View	D: 88.2.0° ~ 28.2° H: 69.0° ~ 22.6° V: 50.8° ~ 17.0°	
Effective Elements	768(H) x 494(V)	
Scanning Frequency (H/V)	15.734KHz / 59.9Hz	
Iris	F1.0 - 360 (DC auto iris)	
Resolution (Horizontal)	480 TVL (Col)	570 TVL (B&W)
Minimum Illumination	0.6 lux (Col) / 0.3 lux (B&W)	0.3 lux
S/N Ratio	> 48dB (AGC off)	
Gamma Characteristics	0.45	
Sync System	INT. / L.L.	
White Balance	ATW	-
Video Output	1.0Vpp, 75ohm unbalanced	
ATW Range	2700K to 9100K	
Water Resistance	IP 65	
AGC	Auto	
Power Supply	12 V DC/ 24 V AC	
Power Consumption	3.0W (Max)	
Ambient Temperature	Operation: -5°C ~+40°C / Storage: -10°C ~ +50°C	
Bubble Thickness	2mm Polycarbonate	
External Dimensions	136(D)mm x 92 (H)mm	
Weight (approximate)	1070g	

KEY FEATURES:

- 1/3" IT CCD
- Ceiling and Wall mount options
- Line lock with phase adjustment
- Backlight compensation
- Automatic gain control
- Unique 3 axis gimble
- Impact and scratch resistant polycarbonate bubble
- Weatherproof (IP65)
- Dual power operation: 12VDC/24VAC

ZC-D6039PHA

High Resolution Colour Dome with Integrated Varifocal Lens

Indoor

The ZC-D6039PHA is available as a colour dome camera that comes with a low voltage input, allowing either 12 Vdc or 24 Vac.

The dome camera is complete with 3.0-9.0mm auto iris varifocal lens driven to provide optimum performance in demanding lighting conditions.

Further setup can be achieved by selecting the dip switches on the camera body. These include backlight compensation, AGC on/off, auto white balance/auto white tracing. Also incorporated is a flickerless mode which minimises interference associated with fluorescent lighting.

The assembly has a 3 axis gimble for adjusting the camera position, allowing it to be ceiling mounted or wall mounted.

Ordering Codes:
ZC-D6039PHA 1/3" Col, 480 TVL, 0.75 lux, 3-9mm Varifocal lens

Perfect Partners

CPSU-24-1.0II
Page No. 37

MODEL	ZC-D6039PHA
TV System	Pal
Focal Length	3.0-9.0mm
Max aperture Ratio	1:1.6
Angle of View	D: 116.2°~39.7° H: 90.0°~31.8° V: 66.2°~23.9°
Image Sensor	1/3" IT CCD
Effective Elements	752 (H) x 582 (V)
Scanning Frequency	15.625kHz / 50.0Hz
Iris	F1.2 - 360 (DC auto iris)
Resolution (Horizontal)	480 TVL
Minimum Illumination 100 IRE	0.75 lux
S/N Ratio	> 50dB (AGC gain : minimum)
Gamma Characteristics	0.45
Sync System	INT./L.L.
White Balance	ATW
Power Supply	12 V DC/ 24 V AC
Power Consumption DC 12V AC 24V	3.1W 3.4 W
Ambient Temperature	Operation : -10°C ~+45°C / Storage : -20°C ~+60°C
AGC	22dB
External Dimensions	128 (D) mm x 103 (H) mm
Weight (approximate)	400g
Adjustment Volume	DC iris level, Line phase

KEY FEATURES:

- 1/3" IT CCD
- Compact and light weight
- Integrated auto-iris varifocal lens 3.0-9.0mm
- Proprietary pan/tilt rotation mechanism
- Distortion-free dome cover with black inner liner
- 12VDC/24VAC dual voltage power input
- BNC and power connectors included

MD SERIES AND CDV SERIES

Standard Resolution Colour and Mono Domes with Integrated Fixed Lens

The MD series has the option for either colour or monochrome cameras with the colour version being fitted with 1/4" CCDs and the monochrome optimising its low light performance by utilising a 1/3" CCD. The cameras are provided with the automatic electronic shutter system allowing the cameras to compensate for changing lighting conditions. Additionally the colour MDC-36-II has an automatic white balance circuit allowing it to operate correctly in changing colour conditions.

The CDV Vandal Resistant Dome range has the option for either colour or monochrome cameras. They provide a perfect solution for surveillance projects where the cameras are prone to abuse. The dome is made of glass reinforced nylon body polycarbonate bubble with an IP65 rating and is suitable for both indoor and outdoor applications. Wall mount and Ceiling mount options available on the Vandal resistant dome range.

Ordering Codes:

MDC-36-II	1/4" Col, 330 TVL, 1.0 lux, 3.6mm lens
MDC-60-II	1/3" Col, 380 TVL, 0.5 lux, 6.0mm lens
CDCV-4CM	1/4" Col, 330 TVL, 2.0 lux, 3.8mm, Vandal, Ceiling mount
CDCV-4WM	1/4" Mono, 380 TVL, 1.0 lux, 3.8mm, Vandal, Wall mount

Ceiling Mount (Vandal & Fixed Lens)

(Fixed Lens) 79D

Wall Mount (Vandal & Fixed Lens)

Perfect Partners

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MODEL	MDC-36/60	MD-36/60	CDCV-4	CDV-4
TV System	Pal	CCIR	Pal	CCIR
Focal Length	3.6mm/6.0mm		3.8mm	
Image Sensor	1/4" IT CCD	1/3" IT CCD	1/4" IT CCD	
Effective Elements	500(H) x 582(V)		510(H) x 492(V)	
Scanning Frequency (H/V)	15.750KHz / 60Hz			
Iris	F2.0			
Resolution (Horizontal)	330 TVL	380 TVL	330 TVL	380 TVL
Minimum Illumination	1.0 lux	0.5 lux	2.0 lux	1.0 lux
S/N Ratio	> 48dB (AGC off)			
Gamma Characteristics	0.45			
Sync System	INT. / L.L.			
White Balance	ATW	_	ATW	_
Video Output	1.0Vpp, 75ohm unbalanced			
Water Resistance	N/A		IP 65	
Vandal Resistant	No		Yes	
AGC	Yes			
Power Supply	12 V DC			
Power Consumption	4.0W	3.0W	3.0W	
Ambient Temperature	Operation: -5°C ~+40°C / Storage: -10°C ~ +50°C			
Bubble Thickness	N/A		2mm Polycarbonate	
External Dimensions (mm)	79(D) x 60(H)		136(D) x 92(H)	
Weight (approximate)	120g		1070g	

KEY FEATURES:

- 1/3" and 1/4" IT CCD
- Line lock with phase adjustment
- Backlight compensation
- Automatic electronic shutter
- Automatic gain control
- Ceiling and Wall mount options (Vandal dome)
- Unique 3 axis gimble (Vandal dome)
- Weatherproof (IP65) (Vandal dome)

ZC-L1210PHA

High Resolution Spot Cam with Integrated Varifocal Lens

A discreet, stylish housing combined with a new 2.8-10mm extended range varifocal makes this camera/lens combination the perfect general purpose internal camera with exceptional performance.

This Camera is compact and stylish with 4.8 inch overall length suitable for most standard surveillance applications. This camera is also suitable for sites where the appearance of the camera is critical to the interior design.

The optional ZCA-LB101 mount eases installation options on ceilings and walls by concealing the power and video wiring. Another optional bracket is the ZP-B15.

Optional mounting brackets and twisted pair transmitter.

Ordering Codes:

ZC-L1210PHA 1/4" Col, 480 TVL, 0.75 lux, 2.8-10mm Varifocal lens

Perfect Partners

*ZCA-LB101 Page 54

*ZP-B15 Page 54

*(to be ordered separately)

CPSU-12-0.5II
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MODEL	ZC-L1210PHA
TV System	Pal
Focal Length	2.8-10mm
Max aperture Ratio	1:1.2
Angle of View	D: 105.8° ~ 27.0° H: 78.2° ~ 21.6° V: 55.8° ~ 16.2°
Image Sensor	1/4" IT CCD
Effective Elements	752 (H) x 582 (V)
Scanning Frequency	15.625kHz / 50.0Hz
Iris	F1.2 - 360 (DC auto iris)
Resolution (Horizontal)	480 TVL
Minimum Illumination 100 IRE	0.75 lux
S/N Ratio	> 50dB (AGC gain : minimum)
Gamma Characteristics	0.45
Sync System	INT./L.L.
White Balance	ATW
Power Supply	12 V DC/ 24 V AC
Power Consumption DC 12V	2.0W
AC 24V	2.5W
Ambient Temperature	Operation : -10°C ~+50°C / Storage : -20°C ~+60°C
Ambient Humidity	Operation: 85% RH max. / Storage : 95% RH max.
External Dimensions	55 (W) mm x 61 (H) mm x 122 (D)mm
Weight (approximate)	200g
Adjustment Volume	DC iris level, Line phase

KEY FEATURES:

- 1/4" IT CCD
- Integrated 2.8-10mm varifocal lens
- Optional mounting brackets
- Twisted-pair video transmission option
- Low voltage

MTC-EX SERIES

Colour/Mono IR Cameras

The High resolution MTC-EX39V Colour/Mono IR Camera is complete with a 3.0-9.0mm auto iris high speed varifocal lens. The MTC-EX4 Colour/Mono is a standard resolution IR Camera complete with a 4mm fixed lens.

In each camera, the lens and infrared LED's provide optimum performance in demanding lighting conditions making the Cameras suitable for around the clock surveillance.

One of the main features of the Cameras is an automatic IR trigger ON under low illumination and OFF under normal lighting and allows effective IR illumination coverage over 12 metres when it gets dark.

The Cameras are water resistant, with an IP65 rating (MTC-EX39V) and IP66 rating (MTC-EX4), making them suitable for outdoor use

Ordering Codes:

MTC-EX39V 1/3" Col/Mono, 480 TVL, 0.6 lux (Col)
0.3 lux (Mono), 3-9mm Varifocal lens

MTC-EX4 1/4" Col/Mono, 350 TVL, 1.0 lux, 3.8mm lens

Ext/Int with Fixed Lens

Ext/Int with Varifocal Lens

Perfect Partners

CPSU-12-0.5II
Page 37

MODEL	MTC-EX39V	MTC-EX4
TV System	Pal	
Focal Length	3.0-9.0mm	4.0mm
Image Sensor	1/3" IT CCD	1/4" IT CCD
Angle of View	D: 88.2° ~ 28.2° H: 69.0° ~ 22.6° V: 50.8° ~ 17.0° (Col/Mono)	
Effective Elements	768(H) x 494(V)	
Scanning Frequency (H/V)	15.625KHz / 50Hz	
Iris	F1.0 - 360	F2.0-360
Resolution (Horizontal)	480 TVL	350 TVL
Minimum Illumination	0.6 lux (Col) / 0.3 lux (B&W) 0 Lux (12 meter IR ON)	1.0 lux
S/N Ratio	> 48dB (AGC off)	
Gamma Characteristics	0.45	
Sync System	INT. / L.L.	
White Balance	ATW	
Video Output	1.0Vpp, 75ohm unbalanced	
ATW Range	2500K - 9700K	
Water Resistance	IP 65	IP 66
AGC	Yes	
Power Supply	12 V DC	
Power Consumption	5W Max with IR Led	
Ambient Temperature	Operation: -10°C ~+50°C / Storage: -20°C ~ +60°C	
IR Led	18 units Infrared LED	12 units Infrared LED
IR Spectrum	850nm	
Effective Range	Over 12 Meters	
External Dimensions	120 (D) x 70 (H) mm	
Weight (approximate)	670g	

KEY FEATURES:

- 1/3" and 1/4" IT CCD
- Compact and light weight
- Indoor and outdoor use
- Infrared Led
- Automatic Day & Night function
- Over 12 meters effective range
- Automatic IR trigger-on under low illumination
- Automatic IR off under normal illumination
- Water resistant (IP 65/66)

MRC-210P

High Resolution Colour Marine Camera

A discreet, stylish stainless steel housing combined with an integrated 2.8-10mm extended range low light aspherical varifocal makes this camera/lens combination the perfect weather proof camera with high resolution performance.

The Camera housing material is a special marine AISI 316 steel which makes it ideal for use in a wide range of hostile environments.

The Marine Camera is compact, stylish and rust proof making it suitable for extreme weather conditions, especially marine applications.

Ordering Codes:
MRC-210P 1/4" Col, 480 TVL, 0.75 lux, 2.8-10mm Varifocal lens

Perfect Partners

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MODEL	MRC-210P
TV System	Pal
Focal Length	2.8-10mm
Max aperture Ratio	1:1.2
Angle of View	D: 105.8° ~ 27.0° H: 78.2° ~ 21.6° V: 55.8° ~ 16.2°
Image Sensor	1/4" IT CCD
Effective Elements	752 (H) x 582 (V)
Scanning Frequency	15.625kHz / 50.0Hz
Iris	F1.2 - 360 (DC auto iris)
Resolution (Horizontal)	480 TVL
Minimum Illumination 100 IRE	0.75 lux
S/N Ratio	> 50dB (AGC gain : minimum)
Gamma Characteristics	0.45
Sync System	INT./L.L.
White Balance	ATW
Water Resistance (Housing)	IP 68
Power Supply	12 V DC/ 24 V AC
Power Consumption DC 12V AC 24V	2.0W 2.5W
Ambient Temperature	Operation : -10°C ~+50°C / Storage : -20°C ~+60°C
Ambient Humidity	Operation: 85% RH max. / Storage : 95% RH max.
External Dimensions	55 (W) mm x 61 (H) mm x 122 (D)mm
Weight (approximate)	1500g
Adjustment Volume	DC iris level, Line phase

KEY FEATURES:

- 1/4" IT CCD
- Compact and Stylish Design
- Heavy duty stainless steel IP 68 housing
- Rust proof housing
- Integrated 2.8-10mm varifocal lens
- Suitable for extreme weather conditions
- Ideal for harsh environments
- Low voltage

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MM AND CM SERIES

Standard and High Resolution PCB Cameras

MM212 1/4" B&W 380 TVL 0.1 Lux 12VDC
MMH212 1/4" B&W 580 TVL 0.2 Lux 12VDC
CM212 1/4" Colour 330 TVL 1.0 Lux 12VDC
CMH212 1/4" Colour 480 TVL 2.0 Lux 12VDC
DMH212-V48A 1/4" Colour/Mono 480TVL
0.09 Lux 4.0mm-7.5mm F1.6-360 12VDC

Various lens options of the MM & CM board camera ranges are available:
CS CS mount (no lens)
L20 with 2.0mm lens, F2.0
L25 with 2.5mm lens, F2.0
L38 with 3.8mm lens, F2.0
L60 with 6.0mm lens, F2.5
L80 with 8.0mm lens, F2.0
P29 with 2.9mm Pinhole lens, F4.5
V26A with 2.0-6.0mm Varifocal lens, F1.6 -360
V36A with 3.0-6.0mm Varifocal lens, F1.2 -360
V310A with 2.8-10mm Varifocal lens, F1.2 -360

32(w) x 32(h)

KEY FEATURES:

- 1/4 " IT CCD
- Large range of models
- Auto white balance (Col. version)
- Backlight compensation
- Automatic gain control
- Low voltage

ZC-NAF27

High Resolution Colour/Mono (D/N) Camera with Auto Focus Zoom

The Autofocus Day/Night camera comes fully equipped camera system with a host of functions. The camera has an integrated zoom lens with a wide focal length range of 3.25 - 88.0mm. Main highlight of the camera is the integrated autofocus which is otherwise only available on complex dome cameras.

Thanks to their compact and sophisticated design, the camera can also be readily installed in smaller housings. In addition to permanent mounting, the camera is also suitable for installation on pan & tilt drives or as dome camera modules with the appropriate mechanics.

The ZC-NAF27 offers a powerful zoom lens with 27x magnification which is suitable for a wide range of applications. In addition, zoom and focus can be controlled remotely through a standard controller.

Ordering Codes:
ZC-NAF27 1/4" Colour/Mono 470 TVL 2.5 Lux (Col) 0.4 lux (B&W) 3.25 - 88.0mm 12VDC

57(w)x 68.9(h)x11.5(d)mm

KEY FEATURES:

- 1/4" IT CCD
- 27X optical zoom and 10X digital zoom
- Day/Night Mode
- Auto or Manual Focus
- Remote zoom and focus control using DC voltage
- On Screen Display
- Video or S-video inputs
- Compact design for installation in small outdoor housings

ZC-Y12 SERIES

Super High Resolution 540TVL Colour Cameras

ZC-Y12 series are new super high resolution compact and light weight colour cameras suitable for almost all applications where there is a strong emphasis on outstanding picture quality.

These cameras are available in mains or low voltage versions. The low voltage model allows both AC & DC connection providing greater versatility.

Extensive features are standard on the ZC-Y12 range of cameras such as advanced digital signal processing, internal or line lock synchronisation, complete with phase adjustment, automatic gain control, auto electronic shutter, auto white balance correction and backlight compensation

Ordering Codes:
ZC-Y12PH3 1/3", Col, 540 TVL, 0.3 lux, 230VAC
ZC-Y12PH4 1/3", Col, 540 TVL, 0.3 lux, 12/24V

Perfect Partners

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Aspherical
Varifocal Lens
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MODEL	ZC-Y12PH3	ZC-Y12PH4
TV System	Pal	
Lens Mount	CS mount	
Image Sensor	1/3" IT CCD	
Effective Elements	752(H) x 582(V)	
Video Output	1.0V (p-p) / 75	
Resolution (Horizontal)	540 TVL	
Minimum Illumination	0.3 lux (F1.2/30IRE)	
S/N Ratio	More than 50dB (AGC OFF)	
Gamma Characteristics	0.45	
Sync. System	INT. / Line-lock	
Scanning Frequency	15.625kHz (H) / 50.0Hz (V)	
White Balance	ATW	
Operating Temperature & Humidity	-10 to +50 Degrees C, 85% RH Max. (No Condensation)	
Storage Temperature & Humidity	-20 to +60 Degrees C, 95% RH Max. (No Condensation)	
Power Supply	230V	12V DC / 24V AC
Power Consumption	4.5 W	3.5W
Weight (approximate)	300g	
External Dimensions	60(W) x 54(H) x 103.3(D) mm	
Switches	Iris Control: DC/AES/VIDEO	
	BLC: ON/OFF	
Adjustments	DC iris level adjustment	

KEY FEATURES:

- 1/3" IT CCD
- 540 TVL High resolution with outstanding picture quality
- High sensitivity
- Advanced digital signal processing
- Low and mains voltage

ZC-YHW702P

High Resolution Colour/Mono (D/N) Wide Dynamic Camera

The ZC-YHW702P camera combines wide dynamic function, true day/night and long term integration to provide a camera that can be configured to meet the most demanding of applications.

The camera comes in a low voltage format accepting either AC or DC power sources automatically, and can be used with all Computar lenses (fixed, manual, DC & video drive iris).

The ZC-YHW702P has a wide range of features that can be accessed through the on-screen display menus. These features include configurable WDR function to compensate for changing backlight conditions, D/N change over level and change over mode for enhanced night and IR performance. Also, integration level and limit for enhanced minimum illumination and motion detection. Privacy masking allows up to 8 sections of the image to be covered where privacy issues may appear to name but a few.

Ordering Codes

ZC-YHW702P Colour/Mono Wide dynamic camera
480 TVL (Col) 520 TVL (Mono), 12/24V

Perfect Partners

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IR Lens
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PRODUCT	ZC-YHW702P
TV System	PAL
Lens mount	CS Mount
Image sensor	1/3" IT CCD
Sync.system	INT.L.L. (Manual switch)
Video outputs	1.0Vp-p/ 75 Ohms
Resolution (horizontal)	480 TVL (Col), 520 TVL (Mono)
Minimum Illuminance	1.0 lux at F1.2 (Colour), 0.025 lux at DSS 0.1lux at F1.2 (Mono)
WDR	Yes (60dB)
Integration	64 fields
D/N	True D/N, change over auto, menu or relay input
D/N change level	Normal, priority to colour, priority to motion
Motion detection	Yes , programmable
OSD function control	OSD camera set-up, WDR, DSS, Day/Night, E-Zoom, BLC, AWB, WCCB, AGC Sync., Flickerless, Masking
Alarm input	Yes
Integration	OFF, 4, 6, 8, 10, 20, 40 Fields
BLC options	OFF/ON/ Wide dynamic range
Iris	Auto Electronic Shutter/ DC/ Video White balance ATW/AWB/Manual
Privacy masking	Up to 8 masking areas, programmable
Voltage input	12VDC / 24VAC
Power consumption	4W
Operating conditions	-10 to +50 degrees C under 90% non condensing
External Dimensions	60(W) x 54(H) x 103.3(D) mm
Weight (approximate)	300g

KEY FEATURES:

- Wide dynamic range
- Day/Night function
- Long term integration
- On screen set up
- Scene select function
- Privacy masking
- Camera title display
- Motion detection
- Aperture Correction (horizontal & vertical)
- Manual selectable shutter speed
- Back light compensation
- Automatic white balance

ZC-NH255P

High Resolution Colour/Mono (D/N) Camera

ZC-NH255P is a high resolution compact and simple camera to install. Colour/Mono camera is suitable for almost all applications where there is poor lighting.

Day and Night function provides high quality colour pictures in normal lighting conditions (Day mode) and a high sensitivity Black & White picture in low light conditions. When the light fades, the camera switches automatically to night mode by removing the colour filter. This switchover can also be performed by use of remote photocell connected to the rear camera terminals.

The ZC-NH255P offers high picture quality and high resolution through 1/3" high-sensitivity CCD sensor.

Ordering Codes:
ZC-NH255P 1/3" Col/Mono, 480 TVL, 0.3 lux (Col)
0.04 lux (Mono), 12/24V

General

F360 for perfect pictures in extreme sunlight

Aspherical

F1.0 Perfect images in low light applications

Day/Night (IR)

No focal shift under IR Illumination

MODEL	ZC-NH255P	
TV System	PAL	
Lens Mount	CS mount	
Image Sensor	1/3" IT CCD	
Effective Elements	752(H) x 582(V)	
Video Output	1.0V (p-p) / 75	
Resolution (Horizontal)	480 TVL	
Minimum Illumination	0.3 lux (F1.2/30IRE) : Colour Mode 0.04 lux (F1.2/30IRE) : B/W Mode	
S/N Ratio	More than 50dB (AGC OFF)	
Gamma Characteristics	0.45	
Sync. System	INT. / Line-lock	
Scanning Frequency	15.625kHz (H) / 50.0Hz (V)	
White Balance	Manual	
Operating Temperature & Humidity	-10 to +50 Degrees C, 85% RH Max. (No Condensation)	
Storage Temperature & Humidity	-20 to +60 Degrees C, 95% RH Max. (No Condensation)	
Power Supply	12V DC / 24V AC Auto Switching	
Power Consumption	3.5W	
Weight (approximate)	300g	
External Dimensions	60(W) x 54(H) x 103.3(D) mm	
Switches	Iris Control:	DC/AES/VIDEO
	BLC:	ON/OFF
Adjustments	DC iris level adjustment	

KEY FEATURES:

- 1/3" IT CCD
- Stylish design
- High sensitivity with minimum illumination
- Excellent picture quality in both day and night mode
- Fast change over from Day/Night mode (less than 1.5 sec)
- Backlight compensation
- Accurate colour reproduction
- Low voltage power input

ZC-NH403P

High Resolution Colour/Mono (D/N) Camera

ZC-NH403P is a Colour/Mono camera, employing Digital Signal Processing (DSP) technology. Day and Night function provides high quality Colour picture in normal lighting condition (Day mode) and a high sensitivity Black & White picture in low light conditions (Night mode) by switching IR cut filters mechanically.

ZC-NH403P offers high picture quality and high resolution through a 1/3" high-sensitivity CCD sensor. OSD menu has various settings including RS485 interface, Area sensing BLC, Backfocus adjustment, Camera titling and Privacy zone masking.

Ordering Codes:
ZC-NH403P 1/3" Col/Mono, 480 TVL, 0.3 lux (Col)
0.03 lux (Mono), 12/24V

Perfect Partners

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MODEL	ZC-NH403P
TV System	Pal
Lens Mount	CS mount
Image Sensor	1/3" IT CCD
Effective Elements	752(H) x 582(V)
Video Output	1.0V (p-p) / 75
Resolution (Horizontal)	480 TVL
Minimum Illumination	0.3 lux (F1.2/30IRE) : Colour Mode 0.03 lux (F1.2/30IRE) : B/W Mode
S/N Ratio	More than 50dB (AGC OFF)
Gamma Characteristics	0.45
Sync. System	INT. / Line-lock
Scanning Frequency	15.625kHz (H) / 50.0Hz (V)
E.Shutter	Auto 1/50-1/100000 Manual 1/50,1/120,1/250,1/500,1/1000,1/2000,1/5000,1/10000
BLC	On (Six sensing area selectable) / Off
White Balance	ATW / Manual
Operating Temperature & Humidity	-10 to +50 Degrees C, 80% RH Max. (No Condensation)
Storage Temperature & Humidity	-20 to +60 Degrees C, 80% RH Max. (No Condensation)
Power supply	12V DC / 24V AC Auto Switching
Power Consumption	4.5W
Weight (approximate)	450g
External Dimensions	76(W) x 61(H) x 123(D) mm
Communication	RS485 two way communication
OSD	Camera ID (000_999 address), Menu setting
D&N Switching	Fuzzy Logic, IR Switch

KEY FEATURES:

- 1/3" IT CCD
- Stylish design
- High sensitivity with minimum illumination
- Excellent picture quality in both day and night mode
- Accurate colour reproduction
- On Screen Display (OSD)
- White balance
- Auto iris level adjustment by OSD menu
- Low voltage power input (12V DC/24V AC)

ZC-Y11

Standard & High Resolution Range of Colour Cameras

All cameras use 1/3" IT CCD providing high sensitivity and performance in the most demanding of conditions. The ZC-Y11 series is available in mains or low voltage versions.

All cameras can be used with a wide range of lenses, including fixed iris, manual iris, video iris and DC iris lenses. An integrated twisted pair transmitter model of the camera is also available (ZC-Y11PH5).

Extensive features are standard on the ZC-Y11 range of cameras such as internal or line lock synchronisation, complete with phase adjustment, automatic gain control, auto electronic shutter, auto white balance correction and backlight compensation.

Ordering Codes

ZC-Y11P4	Colour standard resolution	12/24V
ZC-Y11PH5	Colour high resolution	12/24V
ZC-Y11P3	Colour standard resolution	230Vac
ZC-Y11PH3	Colour high resolution	230Vac

Perfect Partners

Camera Brackets

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MODEL	ZC-Y11P3	ZC-Y11P4	ZC-Y11PH3	ZC-Y11PH5
TV system	PAL			
Lens mount	CS mount			
Image Sensor	1/3" IT CCD			
Effective elements	500(H)x582(V) pixels			752(H)x582(v) pixels
Image output	1.0Vp-p/75Ohm			
Resolution	330 TVL			480 TVL
Min. illumination	<0.27 lux (F1.2/50IRE)			<0.54 lux (F1.2/50IRE)
S/N ratio	>50dB			
Gamma Characteristics	0.45			
Sync. system	INT./L.L. (manual switch)			
Iris control	Video/DC/AES			
Power Consumption	<4.5W	<3.5W	<4.5W	<3.5W
Power supply	230 Vac	12Vdc/24 Vac	230 Vac	12Vdc/24Vac
Operating conditions	-10 to +50°C, 80% relative humidity			
Storage conditions	-20 to +60°C, 90% relative humidity			
Dimensions	60(W) x 54(H) x 95(D)mm			
Weight (Approximate)	600g	300g	600g	300g

KEY FEATURES:

- 1/3" IT CCD
- High resolution and standard resolution
- Twisted pair option (ZC-Y11PH5)
- Line lock with phase adjustment
- Auto white balance
- Backlight compensation
- Automatic gain control
- Mains voltage and low voltage

ZC-F11 SERIES

Standard and High Resolution Range of Mono Cameras

All of the cameras use 1/3" IT CCD providing high sensitivity and performance in the most demanding of conditions. The ZC-F11 series is available in mains or low voltage versions.

All cameras can be used with a wide range of lenses, including fixed iris, manual iris, video iris and DC iris lenses.

Extensive features are standard on the ZC-F11 range of cameras such internal or line lock synchronisation, complete with phase adjustment, automatic gain control, auto electronic shutter, auto white balance correction and backlight compensation.

Ordering Codes

ZC-F11C4	Mono standard resolution	12/24V
ZC-F11CH4	Mono high resolution	12/24V
ZC-F11C3	Mono standard resolution	230Vac
ZC-F11CH3	Mono high resolution	230Vac

Perfect Partners

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MODEL	ZC-F11C3	ZC-F11C4	ZC-F11CH3	ZC-F11CH4
TV system	CCIR			
Lens mount	CS mount			
Image Sensor	1/3" IT CCD			
Effective elements	500(H)x582(V) pixels		752(H)x582(v) pixels	
Image output	1.0Vp-p/75Ohm			
Resolution	380 TVL		570 TVL	
Min. illumination	<0.09 lux (F1.2/50IRE)		<0.18 lux (F1.2/50IRE)	
S/N ratio	>50dB			
Gamma Characteristics	0.45			
Sync. system	INT./L.L. (manual switch)			
Iris control	Video/DC/AES			
Power Consumption	<4W	<3W	<4W	<3W
Power supply	230 Vac	12Vdc/24 Vac	230 Vac	12Vdc/24Vac
Operating conditions	-10 to +50°C, 80% relative humidity			
Storage conditions	-20 to +60°C, 90% relative humidity			
Dimensions	60(W) x 54(H) x 95(D)mm			
Weight (Approximate)	600g	300g	600g	300g

KEY FEATURES:

- 1/3" IT CCD
- High resolution and standard resolution
- Line lock with phase adjustment
- Auto white balance
- Backlight compensation
- Automatic gain control
- Mains voltage and low voltage

YC SERIES

Standard & High Resolution Range of Colour Cameras

The YC CS mount cameras can accept all types of lenses whether they are manual for internal application using AES (auto electronic shutter), or for external use (when fitted inside a housing) using auto iris lenses, either DC or video iris, providing the connection for these from the same plug.

Within the range there are both mains voltage and low voltage options, also within the voltage varieties are standard and high resolution options.

When on site there are features such as automatic gain control, back light compensation and phase synchronisation which allow the set up of the camera to be customised to suit the on site environment.

Ordering Codes

YCH-25P	Colour high resolution	12/24V
YC-30P	Colour standard resolution	230Vac
YCH-30P	Colour high resolution	230Vac

Perfect Partners

Camera Brackets

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MODEL	YC-30P	YCH-30P	YCH-25P
TV System	PAL		
Lens mount	CS Mount		
Scanning System	2:1 interlace		
Image sensor	1/3" IT CCD		
Effective elements	500 x 582	752x582	
Video outputs	1.0Vp-p/ 75 Ohms		
Resolution (horizontal)	380 TVL	570 TVL	
Min.Illuminance	< 0.36 lux (F0.8/50IRE)	0.72 lux (F0.8/50IRE)	
S/N ratio	More than 48db		
y characteristic	0.45		
Sync.system	INT.L.L. (Manual switch)		
Iris control	Video/DD/EI		
White Balance	Auto tracking white balance		
Power supply	230 Vac		12Vdc/ 24Vac
Power consumption	3.5W		4.0W
Operating conditions	-10°C to +50°C relative humidity 80% max		
Storage conditions	-20°C to +50°C relative humidity 80% max		
External dimensions	55(W) x 40(H) x 112.4(D)mm		
Weight	410g		280g
Input & Output	Video output : BNC		
Switches	Iris control, Video / AES / DC, Sync System : INT./L.L., BLC :ON/OFF		

KEY FEATURES:

- 1/3" IT CCD
- High resolution and standard resolution
- Line lock with phase adjustment
- Auto white balance
- Backlight compensation
- Automatic gain control
- Mains voltage and low voltage

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FC SERIES

Standard & High Resolution Range of Mono Cameras

The FC CS mount cameras can accept all types of lenses whether they are manual for internal application using AES (auto electronic shutter), or for external use (when fitted inside a housing) using auto iris lenses, either DC or video iris, providing the connection for these from the same plug.

Within the range there are both mains voltage and low voltage options, also within the voltage varieties are standard and high resolution options.

When on site there are features such as automatic gain control, back light compensation and phase synchronisation which allow the set up of the camera to be customised to suit the on site environment.

Ordering Codes

FC-25C	Mono standard resolution	12/24V
FCH-25C	Mono high resolution	12/24V
FC-30C	Mono standard resolution	230Vac
FCH-30C	Mono high resolution	230Vac

Perfect Partners

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MODEL	FC-30C	FC-25C	FCH-30C	FCH-25C
TV System	CCIR			
Lens mount	CS Mount			
Scanning System	2:1 interlace			
Image sensor	1/3" IT CCD			
Effective elements	500 x 582		752x582	
Video outputs	1.0Vp-p/ 75 Ohms			
Resolution (horizontal)	380 TVL		570 TVL	
Min.Illuminance	< 0.04 lux (F0.8/50IRE)		< 0.08 lux (F0.8/50IRE)	
S/N ratio	More than 48db			
y characteristic	0.45			
Sync.system	INT.L.L. (Manual switch)			
Iris control	Video/DD/EI			
White Balance	Auto tracking white balance			
Power supply	230 Vac	12Vdc/ 24Vac	230 Vac	12Vdc/ 24Vac
Power consumption	3.5W	3.0W	3.5W	3.0W
Operating conditions	-10°C to +50°C relative humidity 80% max			
Storage conditions	-20°C to +50°C relative humidity 80% max			
External dimensions	55(W) x 40(H) x 112.4(D)mm			
Weight	410g	280g	410g	280g
Input & Output	Video output : BNC			
Switches	Iris control, Video / AES / DC, Sync System : INT./L.L., BLC :ON/OFF			

KEY FEATURES:

- 1/3" IT CCD
- High resolution and standard resolution
- Line lock with phase adjustment
- Auto white balance
- Backlight compensation
- Automatic gain control
- Mains voltage and low voltage

ICD & ISD SERIES

High Resolution Compact Cameras

The CBC compact colour/mono camera is the ideal solution where space is at a premium. Although the camera is small in size it is packed full of features and quality to give clear crisp images in any application.

This day/night camera gives 520TVL resolution. One of the key features of this compact camera is the Back Light Compensation (BLC) with very low smear for those tricky applications of strong light sources in the image. The camera has a selectable Chroma on/off switch which allows the cameras to generate colour pictures at a higher sensitivity. It can support both manual iris lenses and also auto iris lenses either direct drive or Video drive.

The Hyper Dynamic Camera is a single chip 480 TVL colour camera employing a new 1/3" DPS (Digital Pixel System) Imager. High performance is coupled with multi-functions like Wide Dynamic Range, 2-way auto iris and auto-white balance. The camera provides a high performance and smear-less picture under very bright backlight conditions. This allows the camera to provide exceptional picture performance for a wide range of surveillance applications.

Perfect Partners

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MODEL	ICD-505P-D	ISD-A10-D
Video System	PAL	PAL/NTSC
Video Output	1volt p-p 75 ohm BNC	
Image Sensor	1/3"	1/3"
Effective pixels	752(H) x 582(V)	720(H) x 540(V)
Resolution	520 TVL	480 TVL
Min Illumination	0.7lux/F1.2 (50IRE) Colour 1lux/F1.4 (50IRE)	0.15lux/F1.2 (50IRE) Mono 0.03lux/F1.4 (32x Sens Up)
Dimensions	60(w)x64(h)x53(d)mm	
Signal to Noise	48dB	95-120dB 36 steps
White Balance	Auto	Auto
BLC	selectable	WDR
Sync	INT/LL	INT/LL
Voltage	12Vdc/24Vac	12Vdc/24Vac
Power consumption	210mA (24Vac) 5.2 W	270Ma (12Vdc)
Mount	1/4" 20UNC (top and bottom mountable)	
Weight	250g	250g

KEY FEATURES:

- Outstanding night-time images
- D/N Version
- Hyper Dynamic (with no smear)
- Very compact body size
- 520 TVL Super high resolution (Colour/Mono model)
- AES, DD AI lens inputs

CPSU-12-0.5A-II

The CPSU-12-0.5A-II is a 12VDC 0.5A regulated linear power supply designed for use in the CCTV industry. The power supply comes fitted with a 3 pin UK style mains plug, two mounting lugs allow the PSU to be fixed in position and red and black output lead allow simple matching to positive and ground terminals on the camera. The PSU is ideal to power GANZ internal cameras.

64(w)x83(h)x25(d)mm

CPSU-24-1.0A-II

The CPSU-24-1.0A-II is a 24VAC 1.0A linear power supply designed for use in the CCTV industry. The power supply comes fitted with a 3 pin UK style mains plug, two mounting lugs allow the PSU to be fixed in position and red and black output lead allow simple matching to positive and ground terminals on the camera. The PSU is ideal to power GANZ internal cameras.

64(w)x83(h)x25(d)mm

CPSU-12-1.0A-II

The CPSU-12-1.0A-II is a 12VDC 1.0A regulated linear power supply designed for use in the CCTV industry. The power supply comes fitted with a 3 pin UK style mains plug, two mounting lugs allow the PSU to be fixed in position and red and black output lead allow simple matching to positive and ground terminals on the camera. This PSU is ideal where a little more power is required, typically GANZ IP cameras and mega pixel EVQ series.

64(w)x83(h)x25(d)mm

CVPSU-12

The CVPSU-12 is a 12VDC 1.0A switch-mode power supply unit. This PSU is supplied with 4 mounting lugs, standard 3 pin UK mains plug. The output lead is red and black providing simple matching to the camera. The added advantage of this power supply is its compact design allowing it to be installed in positions that linear PSUs would not allow.

46(w)x95(h)x55(d)mm

GH PREBUILT SERIES

Housing, Camera & Lens Combined

We have carefully selected Cameras, Lenses and Housings from our Computar and Ganz product ranges and prebuilt them to make installation more convenient.

Installers are able to benefit from the high performance products packaged in a way to keep the installation as simple as possible. Each camera prebuild features a Ganz camera, a Computar lens which are fitted into the GH series housing and back focused.

These are pre-wired and a flying lead is provided to allow power and video to be connected to the housing and camera, creating a truly plug and play camera installation.

MODEL	TYPE	CAMERA	LENS	VOLTAGE
GH-F30C-2Z	Mono Standard Res	FC-25C	TG2Z3514FCS	230VAC
GH-Y30P-2Z	Colour Standard Res	YC-25P	TG2Z3514FCS	230VAC
GH-Y11PH-2Z	Colour High Res	ZC-Y11PH3	TG2Z3514FCS	230VAC
GH-Y11PH-4Z	Colour High Res	ZC-Y11PH3	TG4Z2813FCS	230VAC
GH-Y11PH-10Z	Colour High Res	ZC-Y11PH3	TG10Z0513FCS	230VAC
GH-NH255P-3Z	Colour/Mono High Res	ZC-NH255P	TG3Z3510FCS-IR	12/24VAC
GH-NH255P-5Z	Colour/Mono High Res	ZC-NH255P	TG5Z8513FCS-IR	12/24VAC

Night Vision Camera Kits
Please contact the CBC Sales Team for further information.

KEY FEATURES:

- Simple Installation
- Low voltage available on request
- Various options of Cameras available (Colour or Mono)
- Various varifocal lens options to suit the application
- IP67 GH series housing
- Cable managed housing for increased security
- Power and Video cable installed in the housing

GANZ

Sales and information +44 (0) 208 732 3300

NIGHT VISION CAMERA KITS

Night Vision Mono Kit

The night vision mono camera kit incorporates a Ganz monochrome camera, a Computar vari-focal lens, and Adaptive Illumination Infra-Red all in an environmental housing with integrated bracket and cable management. The kit provides 24-hour surveillance and will cover distances up to 20m+ in total darkness. 0 LUX

Supplied with PSU.

For more details on the camera, lens and Infra-Red refer to pages 30, 6/7 and 65 respectively.

Night Vision Colour/Mono Camera Kit

The night vision Colour/Mono camera kit incorporates a Ganz day/night mode camera, a Computar vari-focal lens, and Adaptive Illumination Infra-Red all in an environmental housing with integrated bracket and cable management. The kit provides 24-hour surveillance and will produce high resolution colour images during the day and high resolution mono images in total darkness and will cover distances up to 30m+ in total darkness. 0 LUX.
Supplied with PSU.

Roadstar Integrated number plate capture kit

The ANPR camera kit combines all the essential elements to capture images of number plates 24 hours a day in all lighting conditions. The kit includes a mono camera, a Computer lens, filter technology and Adaptive Illumination Infra-Red all in an environmental housing with integrated bracket and cable management. Supplied with PSU.

Each component of the kit is chosen for its compatibility and provides easy installation and adjustment.

See page 104 for more details.

EVQ SERIES

Mega-Pixel High Resolution Cameras

A unique multi view camera range that offers a new concept in video surveillance. The cameras not only give you an overview of the scene but offers 3 additional views of zoomed in areas, where close up detail is required.

The cameras have a 1280x720 digital HD sensor using advanced Digital Image Processing which produces extremely high resolution images in excess of 800 TVL, with good wide dynamic range and low light capabilities. Each of the 3 zoomed in areas can be set and stored using a RS485 command. This command can also give electronic pan, tilt and zoom of the scene.

For greater flexibility the cameras have two video outputs; one for Multi view and the other for a selected zoomed-in area. This unique combination of overview and zoomed in areas make this camera an almost perfect choice to replace upto 3 conventional cameras.

Ordering Codes:
EVQ1000 1/4" 800 TVL, Megapixel, 0.1 lux
EVQ3000 1/4" 800 TVL, Megapixel, 0.1 lux, (4.5-10mm or 10-16mm Varifocal Lens)

Perfect Partners

Megapixel Lenses
Page 12

IR Lamps
Page 62

MODEL	EVQ 1000	EVQ 3000
Video System	PAL/NTSC	
Video Output	1.0V (p-p)/ 75 ohm BNC	
	2 outputs	Option of 2 outputs
Image Sensor	1/2" IT CCD, Progressive scan, High definition	
Effective Pixels	1280 x 720	
Minimum Illumination	0.1 lux F1.2 scene 75% reflectance	
Dynamic Range	83dB-125dB	120dB
Signal to Noise	>72dB	>55dB
White Balance	Auto/ Manual preset	Auto
BLC	Low, Medium, High	
Sync System	Int/Ext	
Power Supply	12V DC / 24V AC Auto Sensing	
Power Consumption	8 watts	
Communication	RS232, RS485	RS485
Mounting Options	–	Flush Surface, Vandal Resistant
Dimensions	109(W) x 74(H) x 74(D)mm	
Weight (approximate)	3.8kg	1.9kg (F) 2.0kg (S) 2.6kg (V)

KEY FEATURES:

- 1/2" IT CCD (1280x720)
- High resolution pictures, an incredible 800 TVL
- Day/Night, WDR IR Sensitive
- Electronic Pan/Tilt & Zoom Control
- Overview image
- 3 Zoomed in pictures

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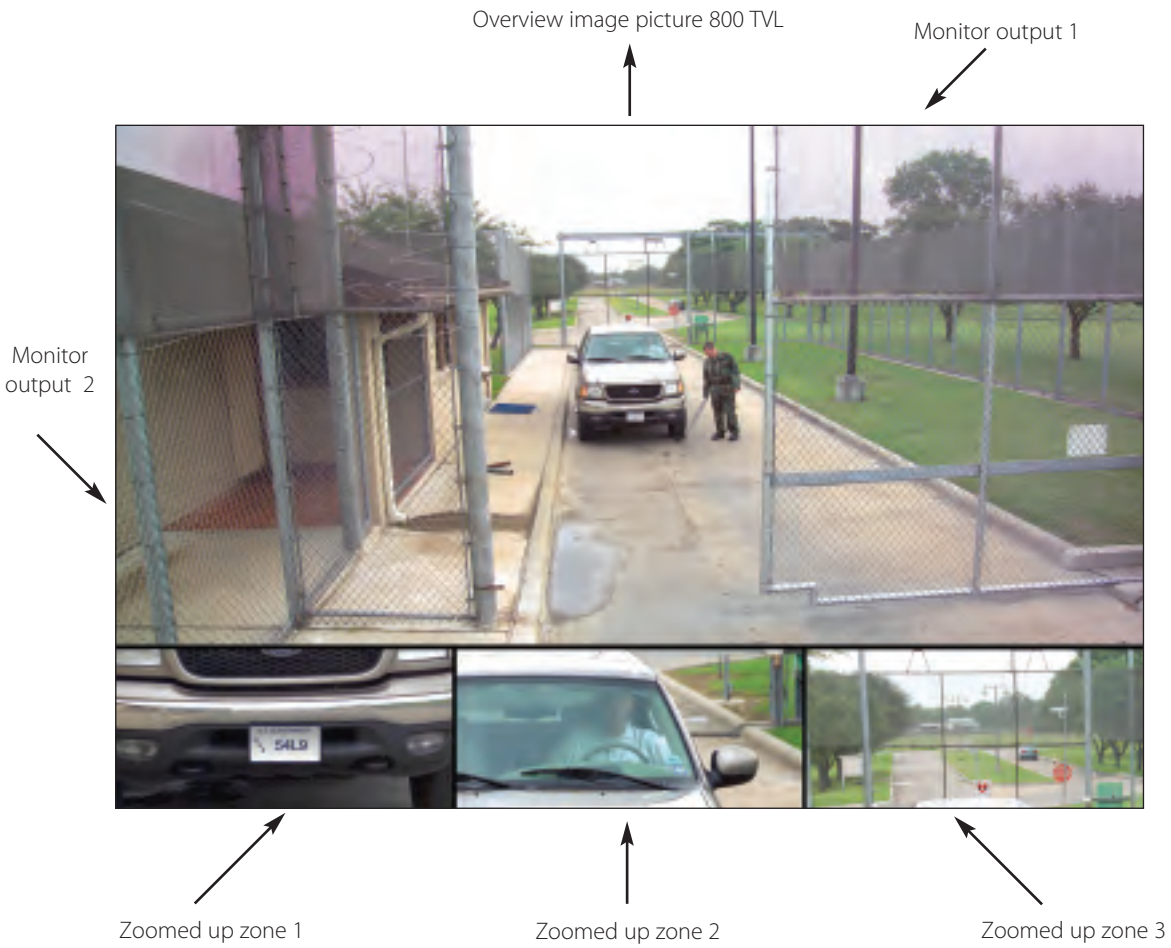

***Any area can give electronic P/T/Z of the overview image above**

Zoomed Image as full screen (output2)
* can be any of the 3 zoomed-up zones

C-DOME

Indoor functional and static

The indoor C-Dome range is designed to be operated and installed easily and quickly. High specification levels disguise the fact that this product line is available to suit a variety of constraints.

There are two alternatives to choose from; either fully functional (PTZ in 22x or 18x optical zoom) or fixed (static with VF lens) or both depending upon the application.

The functional dome is feature packed providing many benefits such as its simplicity of construction (only 17 parts) that makes it reliable and stable. Also, by use of high grade stepper motors (400,000 steps) silky fine control at full zoom with incredible preset accuracy is possible without any slip or movement. The two mimic tours (copying and recording the dome tour following the movement of the operator) not only have the same repeatable accuracy but are easily configured as well.

Should an existing system install need to be upgraded or extended, the multi-protocol adaptability of these domes allow them to be driven by other manufacturers control equipment. The fixed domes share the same housings and fittings as the functional domes but offer alternative cameras.

Perfect Partners

Keyboards
Page 79

Matrix
Page 78

Alternative Options

Wall Mount

Pendant Mount

Mirror Finish

FUNCTION & ACCESSORIES	ORDERING CODES	
Zoom Ratio	Pendant Skirt	False Ceiling
18:1 Colour	C-D1i18P	C-D1i18PC
22:1 Colour	C-D1i22P	C-D1i22PC
Fixed VF Ratio		
2.8 - 12mm	C-D1iF3-12P	C-D1iF3-12PC
10 - 30mm	C-D1iF10-30P	C-D1iF10-30PC
4 - 8mm	C-D1iF4-8P	C-D1iF4-8PC
Accessories		
Pendant bracket	C-D1i-PM	Not applicable
Wall bracket	C-D1i-WB	Not applicable
Corner bracket	C-D1i-CB	Not applicable
Lower dome clear	C-D1i-CC	
Lower dome mirror	C-D1i-MC	
Pendant pole length 300/600/1200mm	C-D1300 / C-D1600 / C-D11200	

All domes are supplied with smoked finish as standard.

For a complete listing of accessories and specifications refer to pages 44 and 45.

KEY FEATURES:

- Quick and easy installation
- 18x and 22x optical zoom
- Continuous rotation and auto flip
- Extremely fine control even under full zoom
- 36 high accuracy preset positions
- 2x mimic tours
- Multi protocols
- RS485/Coax telemetry control
- NTSC models available

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C-DOME

Outdoor functional domes

The outdoor C-Dome range of domes are designed to give premium performance and reliability. High specification levels mean that this product line is available to suit a wide variety of demanding applications.

There are a number of fully functional (PTZ) models to choose from ranging in appearance and electronic functionality to environmental conditions.

Besides the capabilities of the indoor range, the outdoor domes have a number of extra features. For example, the optical zoom ratios are available as 18x colour or 18x and 26x day/night and all have a switchable digital zoom facility. The number of presets and mimic tours are 360 and 4 respectively.

The on screen display (OSD) function allows full access to all dome functions enabling third party control in the case of a retro fit requirement. Additionally, control of lift and gain and servicing like resets can be performed remotely using this function.
Dynamic privacy zones (32 per dome) can be shaped and sized according to the view restriction and increase or decrease according to the zoom setting.

Alternative Options

Swan mount

Heritage mount

Vandal Resistant

FUNCTION & ACCESSORIES	ORDERING CODES			
Zoom Ratio	Wall Mount	Swan Neck	Heritage	Vandal Resistant
18:1 Colour	C-D1X18P	C-D1X18PS	C-D1X18PH	C-D1X18PT
18:1 Day/Night	C-DN1X18P	C-DN1X18PS	C-DN1X18PH	C-DN1X18PT
26:1 Day/Night	C-DN1X26P	C-DN1X26PS	C-DN1X26PH	C-DN1X26PT
	Accessories			
Power supply	Included	Included	Included	Included
Corner adaptor	C-DN1X-CM			
Pole adaptor	C-DN1X-PM			
Soffit adaptor	C-1DN1X-SM	Not applicable	Not applicable	Not applicable
Clear dome finish	C-DN1X-CC			
External alarm	C-DN1X-ALARM-EU (in w/proof box with PSU)			
PCB alarm	C-DN1X-ALARM			

All domes are supplied with smoked finish as standard.
For a complete listing of accessories and specifications refer to pages 44 and 45

KEY FEATURES:

- On screen display (OSD) permits remote access to full dome control, even by third party control equipment
- 32 dynamic privacy zones
- 18x colour, 18x & 26x day/night options with switchable 12x digital
- Continuous rotation and auto flip
- Extremely fine control even under full zoom
- 360 high accuracy preset positions and 4 mimic tours
- Picture freeze between presets
- Multi protocols
- RS485/Coax telemetry control
- Quick and easy installation and maintenance
- NTSC models available

C-DOME

Accessories

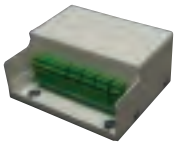
C-D1i-PM

C-D1i-WB

C-D1i-CB

C-D1i-CC

C-D1i-MC



C1-ALARM-EU

C-D1300

C-DN1X-CM

C-DN1X-PM

C-DN1X-SM

C-DN1X-CC

C-DN1X-ALARM -EU

Indoor dome accessories

C-D1i-PM	Pendant Bracket
C-D1i-WB	Wall bracket used for securing domes to a wall
C-D1i-CB	Corner bracket
C-D1i-CC	Indoor lower dome cover clear
C-D1i-MC	Mirror dome cover
C1-ALARM-EU	Internal matrix alarm including power supply
C-D1300	Pendant pole of varying lengths of 300mm (C-D1300), 600mm (C-1600) and 1200mm (C-1200).

Outdoor dome accessories

C-DN1X-CM	Corner adaptor for external wall bracket
C-DN1X-PM	Pole adaptor for external wall bracket
C-DN1X-SM	Soffit adaptor
C-DN1X-CC	Clear external dome
C-DN1X-ALARM-EU	Alarm PCB (mounted in external receiver box with power supply)

C-DOME

Indoor & Outdoor functional domes

MODEL	C-D1i18 (INDOOR)	C-DN1X18 (OUTDOOR)	C-DN1X26 (OUTDOOR)
Video System	PAL (NTSC versions available)	PAL / CCIR (NTSC versions available)	PAL / CCIR (NTSC versions available)
Video Output	1.0 V (p-p) / 75 Image		
Sensor	1/4" ITCCD	1/4" ITCCD	1/4" ITCCD
Horizontal Resolution	480 TVL	480 TVL	480 TVL
Minimum Illumination	0.7 Lux (50 IRE)	0.7 Lux (Col), 0.01 Lux (Mono)	3.0 Lux (Col), 0.01 Lux (Mono)
Horizontal Viewing Angle	2.7°~ 48°	2.7°~ 48°	2.0°~ 45°
Effective Elements	752(H) x 582(V)	752(H) x 582(V)	752(H) x 582(V)
Lens (Focal Length)	4.1 - 73.8mm	4.1 - 73.8mm	2.4 - 60mm
Zoom	18x optical, 12x digital	18x optical, 12x digital	26x optical, 12x digital
S/N Ratio	>50 dB	>50 dB	>50 dB
X Wave Technology	Yes	Yes	No
Wide Dynamic Range	No	No	No
Sync System	INT. / L.L.	INT. / L.L.	INT. / L.L.
Gamma Characteristic	0.45	0.45	0.45
White Balance	ATW, AWB	ATW, AWB	ATW, AWB
Backlight Compensation	Yes	Yes	Yes
Focus / Iris	Auto / Manual	Auto / Manual	Auto / Manual
Presets	36	36	360
Tours	2 Preset Tours (max 36 presets per tour)	4 Preset Tours (max128 presets per tour)	4 Preset Tours (max128 presets per tour)
Learned Patrols	2 Mimic (Learn Tours)	4 Mimic (Learn Tours)	4 Mimic (Learn Tours)
Remote Reset	Yes	Yes	Yes
Auto Homing	Preset, Tour or Mimic		
Privacy Zones	None	32 with 8 present on screen simultaneously	
Preset Titling	Yes	Yes	Yes
Sector Titling	Yes	Yes	Yes
Telemetry	Coax / RS485 /UTP (auto select)		
Operating Temperature	Internal: -10 - 50°C, External: -20 - 50°C		
Variable PanSpeed	0.1 - 400°/ sec	0.1 - 400°/ sec	
Pan Coverage	360°Continuous rotation		
Variable Tilt Speed	0.1 - 200°/ sec	0.1 - 200°/ sec	
Tilt	90°		
Power Consumption	36 W (1.5A)	60W (2.5A)	
Power Supply	24 V AC		
Mounting Options	Wall,Ceiling,False Ceiling Wall, Wall-corner, Pole,Soffit		
External Dimensions	204(d)x214(h) mm	406(w) x 260(d) x 261(h) mm	
Weight (Approximate)	2.89 Kg	5.1Kg	

ZC-PT SERIES

Indoor & Outdoor Functional Domes

Indoor

Outdoor

The Ganz domes offer budget alternatives to the C-Dome range. With good performance, this range will suit many low cost applications.

There are two internal solutions; the 18x and 22x optical zoom and two external solutions all of which have 23x and 26x digital zoom.

Various brackets allow the domes to be ceiling flush mounted for indoor use, or pendant and wall mounted for indoor and outdoor use with suitable adaptors.

The domes have over 250 preset positions and in the case of the 18x model, privacy masking and in built motion detection as well. Multi protocol and language capability make these domes highly versatile and will suit many varied applications.

Asscociated Partners

Corner bracket ZCA-CST, ZCA-CTB, ZCA-CWB

False ceiling adaptor ZCA-TB200

Pendant Mount adaptor ZCA-IPA

Clear Cover ZCA-CB

Smoke Cover ZCA-SB

	FUNCTION & ACCESSORIES		ORDERING CODES	
	Indoor Mounting Accessories			
	Hard Ceiling Mount	Wall Mount Bracket	Pendant adaptor	False Ceiling adaptor
Zoom Ratio				
22:1 Colour	ZC-PT222P	ZC-GT200	ZCA-IPA	ZCA-TB200
23:1 Col/mono	ZC-PT223P	ZC-GT200	ZCA-IPA	ZCA-TB200
	Outdoor Mounting Accessories			
	Pendant mount	Wall Mount Bracket		
23:1 Col/mono	ZC-PT223P-XT	ZC-GT200		
26:1 Col/mono	ZC-PT226P-XT	ZC-GT200		
Accessories				
Corner bracket	ZCA-CST, ZCA-CTB, ZCA-CWB			
lower dome clear	ZCA-SB			
Power supply	ZCA-PSU/Ext or ZCA-PSU/Int			
Pendant pole Length 250/500mm	ZCA-ST25 / ZCA-ST50			

KEY FEATURES:

- Budget Range
- 22x colour, 26x day/night & 23x day/night & WDR optical zoom options & 12x digital zoom.
- Over 250 preset positions
- Privacy masking on 23x and 26x models.
- Motion detection on the 26X
- Multi protocols
- Multi-language
- NTSC models available

ZCA-SC SERIES

DOME Control Keyboard

The ZCA-SC101 provides basic control for up to 16 Ganz domes. The unit has a two axis joystick and controls all the PTZ functions. Presets can be programmed from the keypad and is also able to control multiplexers and DVR's. Besides the above, the ZCA-SC102 provides a more advanced control for up to 223 Ganz domes and has a three axis joystick.

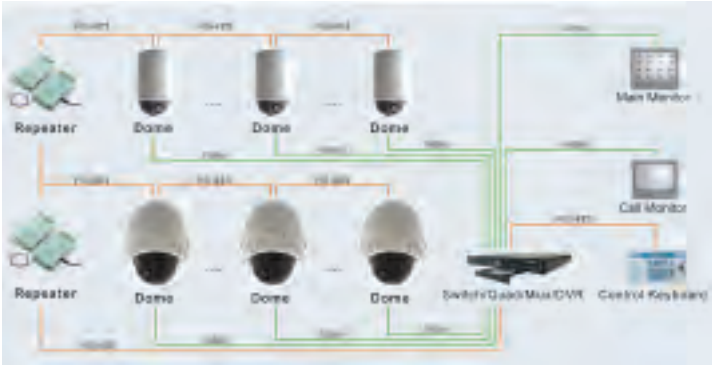
Internal power supply, 1.5amps
ZCA-PSU/INT

External power supply, 3amps
ZCA-PSU/EXT

Goose Brackets
ZC-GT200

Pendant Pole
ZCA-ST25/ST50

System Configuration



KEY FEATURES:

- Basic & Advanced Control Keypad
- 3 axis joystick control
- Controls PTZ Functions
- Preset position & cruise control
- Built-in Real Time Clock
- Controls Dome Cameras, PTZ receivers, Multiplexers and DVRs
- RS-485/RS-232C interface

Installation Example

ZC-PT SERIES

Indoor and Outdoor Functional dome Series

Functions	ZC-PT222P	ZC-PT223P	ZC-PT226P
Optical Zoom Ratio	22x	23x	26x
Digital Zoom		X1~X12 variable	
Effective Pixels		440k	
Horizontal Resolution	460TVL	470 TV lines	470 TV lines
Scanning Area	1/4" CCD	1/4" CCD	1/4" CCD ExView
Scanning System		PAL, (NTSC version available)	
Synchronisation		Internal / Line Lock	
Video Output		1.0Vpp/75,BNC	
S/N Ratio (AGC OFF)		More than 49dB	
Minimum Illumination	1 lux	0.01 lux	0.01 lux
Focal Length	4~88 mm	3.6~82.8 mm	3.5~91 mm
Focus Mode		Auto / Manual	
White Balance		Auto / Manual	
Iris Control		Auto / Manual	
Electronic Shutter	1/1.5~1/4k sec	1/1.5~1/4k sec	1/1~1/10k sec
AGC control		Auto / Manual	
Back Light Compensation		On / Off	
Pan Travel		360° continuous	
Tilt Travel	-10°~100°	-10°~190°	-10°~190°
Manual Speed		1°-90°/s	
Presets		256	
Privacy Mask	-	8	24
Environment	Indoor	Outdoor	Outdoor
Controller Interface		RS-485	
Operating Temperature		Indoor : 0°C ~40°C Outdoor:-30°C ~45°C	
Water Proof Standard		IP 66 Standard (Outdoor: with Sunshield)	
Dimension indoor/outdoor		131 x 226mm / 233.5 x 305mm	
Weight indoor/outdoor		1.6kg (INT) / 5.8 kg (EXT)	
Power Source indoor/outdoor		12VDC / 24VAC (INT), 24VAC (EXT)	
Power Consumption		52 W (w/ Heater)	

CAMERA DEFINITIONS

2:1 INTERLACE – The combination of two individual fields of 312? lines to create a single frame of 625 lines (CCIR standard).

A/V. (Audio/Visual) The input on consumer devices that allows the connection of baseband video.

A.G.C. (Automatic Gain Control) An electronic circuit that varies to keep the signal at a constant predefined level; typically used in cameras at low light levels. This can also introduce noise in the video signal often referred to as a grainy appearance. The higher the level of AGC the more the signal is amplified, typical values 12 – 20 dB i.e. a gain of approx 4x - 10x.

A.I. (Auto Iris) An electronic circuit fitted to the iris of a lens that allows the iris to vary automatically to help compensate for large changes in light levels using video and power levels from the camera.

A.L.C. (Automatic Level Control) On AI lenses, also known as the peak/average control. Adjusting this control allows the auto iris circuitry to either take bright spots more into consideration (peak), bringing out detail in bright areas, or less into consideration (average) bringing out detail in shadows.

AMBIENT LIGHT LEVEL - The background or general light level of a given area or scene.

ANALOGUE - A signal in which any level is represented by a directly proportional voltage; not digital.

ANGLE OF VIEW - Angle of view is the angle covered by a picture for a particular lens and camera combination. The higher the number, the wider the area that can be covered by the camera-lens combination. However, the angle will decrease with the format size, of either the camera or the lens

APERTURE - The 'opening' of a lens, a measure of its light gathering capability. Relative Aperture is a ratio between its focal length and effective aperture, measured in F numbers, generally the lower the better.

ASPECT RATIO - The ratio of the vertical to the horizontal dimension of an image. This is normally 3:4.

ASPHERICAL LENS - A lens designed with a non spherical shape optics. This allows 3 benefits, improved light efficiency (lower f stop), more compact and less distortion.

AUTO WHITE BALANCE - Feature on colour cameras whereby the camera constantly adjusts to the scene colours to maintain a reference to white.

ATTENUATION - A term that refers to signal loss in a transmission system.

B.L.C. (Back Light Compensation) A feature of modern CCD cameras which electronically compensates for high background lighting to give detail which would normally be silhouetted.

BACK FOCUS The mechanical aligning of the imaging device with the focal point of the lens. This becomes most important on zoom lenses so they "track" when zooming in and out (stays in focus throughout the zoom range).

BALANCED SIGNAL - Method of transmitting video, usually over twisted pair cable, that consists of two equal but opposite signals being sent down two conductors. Typically a way of reducing noise within the signal so the signal can be sent further.

BALUN (Balanced Unbalanced) A device that connects a balanced line, such as twisted pair, to an unbalanced line, such as coax cable.

BAND WIDTH - The frequency range that an electronic circuit can accept.

BASE-BAND VIDEO - A video signal that has no form of modulation. Typically used in CCTV and can be displayed on a monitor, most TVs will also accept this signal via the AV (audio/visual).

BLACK LEVEL - The level on a video signal, just above the sync pulses, where black portions of the picture are represented.

BLANKING (Field and line flyback blanking) - The period of the composite video signal when the retrace occurs, making it invisible on the screen. This avoids the appearance of thin white lines in the picture.

BNC - Video connector, the most commonly used in CCTV.

C MOUNT Long established industrial standard for connecting cameras and lenses, widely used in the CCTV industry. The distance from the flange surface to the focal point is 17.526 mm.

C.C.D. (Charged Coupled Device)
The chip the collects the light, performs the same function as a camera tube. Most modern cameras use a CCD, the Size is measured diagonally and can be 1/4", 1/3", 1/2" or 2/3". There are two types, frame transfer and interline transfer.

CHROMA BURST - The reference signal included in the video signal after the horizontal sync pulse. This enables a colour monitor to lock on to a colour composite video signal.

CHROMINANCE - The part of a colour video signal that carries the colour information.

C.C.D. (Charged Coupled Device) A 'chip' that performs the same function as a camera tube.

C.C.I.R. (Comite Consultatif International des Radiocommunications) The European TV standard 625 lines 50 fields.

CS Mount (Special C mount) New standard for connecting cameras and lenses. It has a shorter penetration into the camera, needed for many modern CCD designs. The distance from the flange surface to the focal point is 12.5mm

CS TO C MOUNT ADAPTOR - This is also known as a spacer ring, and is used when you want to fit a C-mount lens on a CS-mount camera. A 5 mm spacer changing the flange to focal point from 12.5 mm to 17.5 mm.

CO-AXIAL CABLE - Any cable that has a conductor and shield sharing the same axis. Typical coaxial cable would be RG59.

COMPOSITE SYNC - A signal comprising of both Line and Field sync pulses but without any video information.

COMPOSITE VIDEO - A complete video signal, comprising of sync and video information. The sync pulse should be 0.3 volts and the video signal should be 0.7 volts.

CROSSTALK - Unwanted interference from another adjacent communications channel.

CAMERA DEFINITIONS

dB (decibel) - A logarithmic ratio between two signals. It is used as the unit of noise or signal strength, each 6dB doubles the voltage.

DEPTH OF FIELD - The proportion of the field of view that is in correct focus. The depth of field in focus DECREASES when: the focal length is longer, the f number is smaller, or the object distance is shorter.

DIGITAL SIGNAL – A signal that is made up of 1s and 0 and therefore can be processed by a microprocessor.

D.D. (Direct Drive) This is a lens with an IRIS that varies automatically depending on the light level. The lens itself has no circuitry (just a motor or galvo), with the camera providing the drive and damping voltages therefore driving the lens directly.

E.I. (Electronic Iris) Automatically varies a CCD camera's shutter to mimic Auto Iris control, allowing fixed or manual iris lenses to be used in a wider range of areas.

EIA (Electronic Industries Association)
A standards organisation in the US specialising in the electrical and functional characteristics of interface equipment. Also the name given to the standard used in the USA for monochrome cameras.

EIA/TIA - The US Electronics Industries Association and Telecommunications Industries Association, which have merged. The EIA is a US trade organisation for the electronics industry that concentrates on hardware interface standards.

EXTERNAL. SYNC - The ability of CCTV equipment, normally cameras, to accept one or more of the standard sync formats so as to align itself to the rest of the system. Traditionally used in analogue multiplexing where very accurate synchronisation of cameras was required.

EXview™ - The latest interline CCD sensor from SONY that has increased sensitivity across the visible spectrum and the near IR.

F STOP - This is the ratio of the focal length to the effective diameter of the lens (f/A). It is not a measure of the efficiency or the transmission value of the lens. The smaller the f number the more light is passed.

FC - Foot candles, used in some USA specifications to define sensitivity. 10fc is approx. 1 lux.

FIELD - One half of a frame, consisting of either the odd or the even numbered lines, 50 fields are transmitted every second.

FIELD OF VIEW- The view achieved with a particular lens; varies with the focal length and the CCD size of a camera.

FLANGE BACK LENGTH - The distance from the back flange of a lens to the sensor face. This is 17.526 mm for C-mount and 12.5 mm for CS-mount lenses.

FOCAL LENGTH- Of a lens, the distance in millimetres, between its secondary principal point and its focal point. The higher the number the greater the magnification and the less the field of view.

FOCAL POINT- The point on the axis of a lens to which parallel rays of light will cover.

FRAME - One complete TV picture made up of approximately 625 lines. 25 frames are transmitted every second.

FRAME TRANSFER CCD- Type of CCD chip which consists of vertical charge transfer channels placed side by side. During vertical blanking, the charge generated in the light sensitive imaging area is rapidly transferred into a shielded storage area. During the horizontal blanking, this charge is shifted down a line at a time into a horizontal shift register where it is clocked out during each line period to form the video signal. Traditionally this system was preferred to eliminate vertical smear (car headlamps).

GALVANOMETRIC (GALVOMETRIC)
One method of converting the small electric currents produced by Auto Iris circuits into physical movement of the iris diaphragm. Used in both Auto Iris and Direct Drive lenses.

GAMMA CORRECTION - An electronic correction carried out by the camera circuitry to balance the brightness seen by the camera to that of the monitor.

GEN LOCK - See external sync

GROUND LOOP - An unwanted continuous or temporary ground current flowing back and forth between two devices that are at different ground potentials.

GROUND LOOP TRANSFORMER - An isolation transformer. There is no direct connection between input and output.
HERTZ (Hz) - The number of variations per second (e.g. picture frames, alternating of the current, etc).

IDENT - Characters generated onto a video signal, for example, titles, time and date.

ILLUMINANCE - The measurement of light in lumens per square metre, the unit of which is the lux.

IMPEDANCE - The effective resistance of an electronic circuit to an A.C. signal.

IMAGE SENSOR FORMAT - Size of the CCD element in the camera.

INFRA RED LIGHT - The wavelength of light produced above the visible part of the spectrum.

INTERLACE - The accurate combining of two fields, one odd one even, into a single frame. For standard video picture make up, you would have 50 fields per second interlaced, which equates to 25 frames per second.

INTERLINE TRANSFER CCDType of CCD chip in which the photosensors acquire and store an electric charge according to the intensity of light falling on them. The charges are first transferred to a vertical shift register and then a horizontal shift register. This is controlled by an external pulse timing system.

INTERNAL SYNC (crystal controlled)
A camera that generates its sync pulses without reference to any other source. Normally using a crystal controlled oscillator.

IP RATING - This is used as an index of environmental protection. The number combination defines the protection from outside influences afforded by an enclosure. The minimum rating for most external housings for cameras is IP65.

IR SHIFT - The difference in the field of view in focus between daylight and infrared light.

ISIT (INTENSIFIED SILICON INTENSIFIED TARGET) - A camera used in exceptionally low light conditions. This type of camera is susceptible to damage and requires great

CAMERA DEFINITIONS

care when used in normal lighting conditions. Some cameras have an internal sensor that automatically cuts out the first level of intensification.

LENS MOUNT - See C-Mount and CS-Mount.

LINE LOCK - To synchronise the field sync pulses, of an AC powered camera, to the frequency of the voltage input (line voltage).

LINE POWERED - A camera in which the power is supplied along the same coaxial cable that carries the video signal. Makes for ease of installation, but cabling distances can be restricted and connections to other equipment can cause problems.

LUMINANCE (Y)- The part of a video signal that consists of the monochrome data.

LUX- Metric measure of the light striking a surface. The light available from that surface will depend on how reflective it is.

MECHANICAL FOCUS - The mechanical aligning of the imaging device with the focal point of the lens, most often on zoom lenses, to ensure the image stays in focus throughout the zoom range that the system has been set to.

MONOCHROME - Black and white, not colour.

N.T.S.C. (National Television Standards Committee. See EIA) - Colour TV system used in the USA.

N/D (Neutral Density)- A filter that accenuates light equally over the whole visible spectrum. Normally used when setting back focus of camera/lens combinations in the day time (allows the replication of night time conditions)

OSD - On-Screen Display. The ability of a camera or a piece of camera control equipment to display its set-up menu on a display monitor. Thereby greatly simplifying installation

P.A.L. (Phase Alternate Line. See CCIR) Colour TV system used in the UK.

P-P (Peak-to-Peak) The voltage of a signal measured between its most positive and negative points. CCIR standard video is 1 volt P-P.

Peak White Inverter (Eclipser)An electronic circuit that turns any white part of a video signal, over a preset level, to black. If installed in the auto iris video line it decreases the contrast of one picture, bringing out detail otherwise lost in shadow.

PEDESTAL The portion of a video signal between the sync. pulses and the black level.

PSU - Power supply unit.

REFLECTANCE - The ratio of light returned from a surface expressed as a percentage.

REFLECTED LIGHT - Scene illumination multiplied by reflectance. This is the amount of light returned to the camera and determines the quality of picture.

S/N (SIGNAL TO NOISE) RATIO - a measurement of the noise level in a signal expressed in dB (decibels). In a video signal, values from 45 dB to 60 dB produce an acceptable picture. Less than 40 dB is likely to produce a 'noisy' picture.

SCENE ILLUMINATION - The density of light in LUX falling on the area to be viewed. For best results the ratio of the lightest to the darkest areas should not exceed a factor of two.

S.E.C.AM. (System Electronique Couleur Avec Memoire. See CCIR) Colour TV system used in France.

SENSITIVITY - Of a camera, usually specified in LUX, should be the amount of light falling upon an imaging device to produce a video signal of 1-volt peak to peak. Confusingly, it is often referred to as the amount of light at the lens, which is not technically accurate and can be misleading unless the lens specification is provided in detail, including its light transmission value.

SIT (SILICONE INTENSIFIED TARGET) - A camera for use in very low light levels.

SPECTRAL RESPONSE - The sensitivity of the imaging device to different frequencies of light. This is usually in the range of 300-1000 nanometres. Visible light is up to 730nm, dull red infrared lighting from 700-850nm, invisible infrared is over 850nm.
SYNC (Synchronisation pulses) Pulses generated, normally by the camera, to tell other pieces of equipment when a picture (field sync) or one line of a picture (line sync) is to start.

TERMINATED (75 Ohm terminated)
Video input of a piece of CCTV equipment, wired to be the last in a particular video line.

TERMINATION - The video cable requires an impedance of 75 ohms at normal video signal bandwidth. This is often called 'low Z'. There is a switch on the back of the monitors to select either 75 ohm or 'high Z' (sometimes 'high/low'). If a signal is looped through more than one monitor all should be set to 'high' except at last, which should be to 'low' or 75 ohm.

TVL (Television Lines - Resolution)
The maximum number of changes between light and dark on a picture across 3/4 of the width dictates the resolution of a CCTV product, measured in TVL.

UNTERMINATED - Video input of a piece of equipment, wired so as to allow the video signal to be fed to further equipment. Does not necessarily include extra sockets for the extra cables.

V.B.S. (Video, Burst, Sync) - A composite colour video signal.

V.S. (Video Sync) - A composite monochrome video signal.

VARIFOCAL LENS - A type of lens that enables a manual selection between two focal lengths, to give the desired picture view. A good option for customers, who are unsure of angle or distance, as it saves having to try multiple lenses.

WHITE LEVEL - The brightest part of a video signal corresponding to approximately 1.0 volt (0.7 volts above the black level).

Y - The black and white video signal.

Y/C - A method of sending video pictures in 2 separate parts down 2 separate cables. The component parts are Y (the Black and White portion) and C (the colour portion).

54 Camera & Monitor Brackets

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Hardware at a glance

Brackets

Monitor brackets

Vandal Resistant

Dome

GH Range

CH Range

Heavy Duty Pan & Tilts

Large Housings for Zooms

UL Series

IR Series

White Light

Z SERIES

Internal Camera Brackets

These camera brackets are ideal for internal use, designed to complement our YC and ZC camera range. Available in grey & cream.

ZP-B10(GW)	Internal Camera Bracket	White	Wall mount
ZP-B10(GR)	Internal Camera Bracket	Grey	Wall mount
ZP-B11(GW)	Internal Camera Bracket	White	Ceiling mount
ZP-B11(GR)	Internal Camera Bracket	Grey	Ceiling mount

A very light weight attractive silver bracket suitable for our YC, ZC and Spot camera range.The bracket is ceiling and wall mountable.

ZP-B15	Internal Camera Bracket	Silver	Ceiling/ Wall Mount

A special grey bracket for use with the Spot Cam (ZC-L1210PHA) only. Cable management through the bracket helps to make a tidy installation. The bracket is ceiling and wall mountable.

ZCA-LB101	Spot Cam Bracket	Grey	Ceiling/Wall Mount

M SERIES AND ZMA SERIES

CRT & LCD Monitor Brackets

Ceiling (MISC/MIDC)

Wall (MISW/MIDW)

2 knuckles

3 knuckles

		Monitors
MISC 12/14	For 12"–14" Monitors Ceiling Mount (275-377mm, height x width)	CEM-12 II/CEM-15A/ ZM-CR114NP/ ZM-CRH115NP
MIDC 14/21	For 14"–21" Monitors Ceiling Mount (367-532mm, height x width)	CEM-20A/ZM-CR121NP
MIDC 21/28	For 21"–28" Monitors Ceiling Mount (510-675mm, height x width)	
MISW 12/14	For 12"–14" Monitors Wall Mount	CEM-12 II/CEM-15A/ ZM-CR114NP/ZM-CRH115NP/
MIDW 14/21	For 14"–21" Monitors Wall Mount	CEM-20A/ZM-CR121NP
MIDW 21/28	For 21"–28" Monitors Wall Mount	
ZMA-WB3	3 knuckles, wall mount bracket	ZM-L215VC/ZM-L217VC /ZM-L220C TFT LCD Monitors
ZMA-WB2	2 knuckles, wall mount bracket	ZM-L215VC/ZM-L217VC /ZM-L220C TFT LCD Monitors

2 knuckles – Swivels left and right, total 180 degrees and the LCD Monitor swivels up to 270 degrees.

3 knuckles - Swivels left and right, total 180 degrees and the LCD Monitor swivels up to 270 degrees and pivot moves, upwards and downwards.

CAUTION: When installing a monitor bracket its very important to pay strict attention to the dimensions and weight of the monitor. Monitors are heavy and can cause serious damage or personal injury should they fall. CBC accepts no responsibility for damage or personal injury caused by incorrect or unsuitable installation of brackets or monitors or any resulting damage from unauthorised/inappropriate modifications.

V4 SERIES

Dome Housing Range

Ideal for compact size fixed lens/camera combinations. We have 4 versions available; Black, White, Smoked and Mirror. These housings are ceiling mount with Pan & Tilt manual camera adjustment.

V4B	Internal Dome	Housing	Black	Fixed
V4W	Internal Dome	Housing	White	Fixed
V4S	Internal Dome	Housing	Smoked	Fixed
V4M	Internal Dome	Housing	Mirror	Fixed

Dimensions: 60(w) x 60(h)mm

TPSK

Vandal Resistant Housing

TPSK Housing has been designed for surveillance applications in places highly exposed to vandalism .

This is a heavy duty steel epoxy coated external body with a Polycarbonate glass anti-shock replaceable viewing window.

The unit is ceiling mountable with a side cable exit

TPSK Vandal resistant housing, Wedge style

Usable cam.dimensions: 90(w) x 110(h) x 180(l)mm
External dimensions: 170(w) x 170(h) x 390(l)mm

IDPH

Indoor Dust-Proof Housing

The IDPH is a low cost dust-proof housing for internal use. It is manufactured from high quality engineering thermoplastic for durability and aesthetic appeal.

The housing is available with a bracket which is Wall and Ceiling mountable

IDPH Indoor housing, with bracket

Max. camera dimensions: 60(w) x 60(h) x 170(l)mm
External dimensions: 62(w) x 62(h) x 320(l)mm

GH SERIES

External Camera Housing

The GH series of housing have been designed to provide the greatest degree of protection required by a CCTV system while still being easy and simple to install. The housings have been designed to accommodate the most common lens/camera combinations. These include the 10x varifocal and 6x zoom lens from Computar.

The GH series of housings are rated as standard to IP67 making them suitable to be used in the most demanding of weather conditions. If however this is not enough, an IP68 housing can be supplied on request. The central body of the housing and the sunshield are made from die cast aluminium and the front and rear of the housing are made from technopolymer fibreglass reinforced. The kit units are supplied complete with the wall bracket cable managed and fitted with extra flexible power and video

Ordering Information

GH-230KIT	Midi housing kit, 230VAC
GH-24KIT	Midi housing kit, 24VAC
GH-12KIT	Midi housing kit, 12VDC

Perfect Partners

Cameras
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Lenses Page 6

MODEL	GH-230KIT	GH-24KIT	GH-12KIT
Water Resistance		IP 67	
Voltage Input	230 Vac	24 Vac	12 Vdc
Housing Weight		1690g	
Bracket Weight		460g	
Power Consumption	40mA	350mA	700mA
Operating Conditions		-20 to 50°C, relative air humidity 99% non condensing	
Dimensions (W x H x D)		142mm x 142mm x 395mm	
Sunshield		Diecast aluminium	
Centre Section		Diecast aluminium	
Front & Rear		Techno Polymer Fibreglass Reinforced	
Supplied with KIT bracket		Power & video cable (cable managed)	

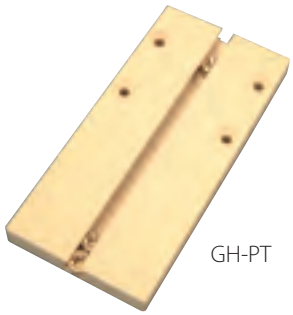
KEY FEATURES:

- Complete housing including wall mounting arm with pivot head, sun shield and heater
- Prewired with internal cable guide
- Simple installation & positioning of the camera
- Anti reflective front glass
- IP67
- IP68 available on request

GH ACCESSORIES

GH-SM	Spacer/wall mount adaptor for side running of cables
GH-SS	Sunshield
GH-WM	Adjustable head and wall mount bracket
GH-PAR	Pole mount adaptor
GH-PT	Pan & Tilt plate adaptor
GH-CM	Ceiling mount bracket with inner running of cables
GH-TK	Housing Tamper Kit for GH Housing
GH-VTA	Video Tamper Kit for GH Housing
GH-PS230/24	Internal power supply 230Vac/24Vac out
GH-PS230/12	Internal power supply 230Vac/12Vdc
GH-PS24/12	Internal power supply 24Vac/12Vdc out
GH-B12	Blower option for GH Housing powered at 12Vdc
GH-B24	Blower option for GH Housing powered at 24Vac

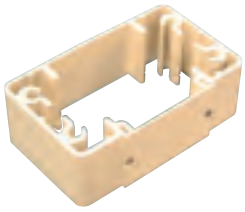
GH-PA



GH-PT

GH-VTA

GH-SM



GH-PS

Mountings/Adapters

The GH-CM allows the GH Kits to be adapted to allow ceiling mounting.

The GH-PA can be fixed to the wall brackets of the GH Kit housing, allowing the housing to be mounted to a pole with a minimum diameter of 80mm. Final fixing is achieved by using metal strips up to 20mm width.* (Not supplied)

The space plate GH-SM fits in between the wall and the standard wall mounting brackets of the GH-Kits housing. This allows the cable to exit the bracket through the side.

The accessories for the GH weather-proof casing offer a wide range of possible combinations and applications. As with the GH-KIT, the well thought-out design guarantees effortless assembly. Special tools are included for this. The mountings are made of sustainable aluminum and coated with robust protective paint for enduring and reliable outdoor application. All accessory parts harmonise in colour.

The weather-proof casing of the GH is available for 12 VDC, 24 VAC and 230 VAC power supply. It is classified according to IP 67. The supplied gaskets come into operation in the case of surface cable channelling without a wall arm.

To fulfil IP 68 requirements, it can be equipped with special rubber gaskets, on demand.

The sun-protective roof GH-SS can be folded away to both sides. Quick release fasteners and a special key permit convenient opening of the lightweight casing. Three spacers allow perfect camera and lens adjusting.

CH SERIES

External Camera Housings

The CH series of housings have been designed to provide camera housings for virtually all applications from the small camera to the large zoom lens. The External housings offer two varieties of entry either by the traditional slide forward style (CHEM or CHEB) or via the easy access option of the side opening entry (CHOV).

The range of housings come with a wide degree of accessories including wall brackets, pole adaptors, pole mounting and IR mounting accessories. This allows the housings to be mounted in virtually any application. With the added factor of cable management on the CHOV to provide additional integrity and security, allowing the housing to be installed without there being any cables on show.

CHEM	Environmental housing, Small
CHOV	Environmental housing, Side opening, Small
CHEB	Environmental housing, Medium

Perfect Partners

Lenses Page 6

Cameras
Page 28-36

MODEL	CHEM	CHOV	CHEB
Water Resistance	IP65	IP54	IP 65
Housing Weight	1.9Kg	3.2 Kg	3.2Kg
Heater Consumption	180mA/600mA/1200mA (230V AC/24V AC/12V DC respectively)		
Dimensions			
Internal Size (L x W x H mm)	300 x 65 x 70	300 x 78 x 81	330 x 90 x 85
External Size (L x W x H mm)	405 x 113 x 104	465 x 145 x 130	475 x 144 x 135
Construction	Aluminium		
Colour - Body	CBC Grey		
Sun Shield	RAL 9002		
Heater Thermostat	Turn on <14C Turn off >20C		

KEY FEATURES:

- Cable managed (CHOV)
- Cable managed option (CHEB)
- 12V, 24V or 230V voltage options
- Wide range of options
- Side opening (CHOV)
- Ceiling mount option

CH ACCESSORIES

WBOV/P

WBJ

WBM

WBOV Wall Bracket
This bracket is designed for the CHOV housing and features internal cable management systems. Finished in grey epoxy paint and made in robust die cast aluminium. This bracket helps ensure a neat and attractive installation. Maximum load 10Kg. CHEB-EC - converts CHEB to take WBOV Brackets.

WBOV/P Wall Bracket with box
This accessory uses the WBOV bracket with its internal cable management system and supplied with a junction box mounted on the side. It makes a neat installation and offers a good level of resistance to vandalism, as well as providing easy access to connections when security is required. Maximum load 10Kg

WBM Wall Bracket and Head
Compatible with the CHEM & CHEB external housings, made from die cast aluminium and finished in grey epoxy paint. Robust and easily adjusted, this has to proved to be a very versatile bracket. Maximum load 10Kg

WBJ Wall Bracket and Head
An extended bracket for use with CHEM & CHEB housings. Made to the same high standard as the WBM. This bracket gives more length for use with larger housings or when obstructions need to be visually cleared. Maximum load 10Kg

WBOV	External housing bracket, Cable management (CHOV or CHEB)
WBOV/P	External housing bracket, Cable management with box (CHOV)
WBM	External housing bracket (CHEM & CHEB)
WBJ	External housing bracket (CHEM, CHEB & CHOV)

CM4 & CM5
Internal Housing Brackets

CM5 Ceiling Bracket and Head
A novel approach to suspending housings from ceilings, this bracket offers sturdy support and an internal passage for cables in an attractive design. Made in tubular, cast aluminium and finished in grey it is easily installed and adjusted. Maximum load is 20Kg. For use with the CHEM and CHEB housings.

CM4 Ceiling Bracket and Head
Exactly the same as the CM5 but designed for the CHOV type housing with total cable management for added cable security. Maximum load 20Kg

CMP Bracket Extension
A 500mm extension tube increasing the drop of the above ceiling brackets. The CMP simply screws in between the ceiling plate and the original bracket.

Ordering Information:

CM4	Ceiling Mount for CHOV
CM5	Ceiling Mount for CHEM, CHEB and CHOV
CMP	Extension for CM4 and CM5

610-615 SERIES

Pan & Tilt Heads

Perfect Partners

IR lamps Page 62-67

Telemetry Receiver & Controller Page 80/81

The range of Pan and Tilt heads are designed to the highest quality and performance standards. Precision engineering culminates in a product line that is certified to IP68 standards. The products listed below are available as AC or DC options, with or without presets. Strong load carrying ability with regenerative breaking for rapid deceleration ensures that precise control is always available at the fingertips. Backlash is a mere 0.15 degrees. The mounting accessories come complete with standard 4" PCD fixing.

These models are typically used where high zoom factors and excellent picture quality from our high end cameras are required. Ideal applications are for border control, sea ports, town centres, traffic surveillance, etc.

The most popular pan and tilt heads are listed below but a wider variety of models with different speeds and voltages to suit many applications are available upon request.

The telemetry control for the units below are listed on pages 80-81.

FUNCTION AND ACCESSORIES				
Type	Over the top mount Preset version		Side mount	Preset version
Max loading	12kg (nominal)		20kg (nominal)	
Voltage	Ordering codes			
230VAC	610/12/6/OTT	610P/12/6/OTT	610/12/6/SM	610P/12/6/SM
24VDC	615P/32/12/OTT		615P/32/12/SM	
Telemetry receivers	See page 80/1 for full range of telemetry control equipment			
Options	A wider variety of optional equipment, speeds, and voltages is available upon application			
Accessories				
Wall mount bracket	704			
Corner adaptor	706			
Column Spacers				
150mm	700			
300mm	702			
IR Lamp mounting plate	600DER			

KEY FEATURES:

- Precision construction
- IP 68 for hazardous conditions
- High accuracy, backlash less 0.15 degrees
- Regenerative breaking on DC models for rapid deceleration
- Range of mounting accessories

900/950 SERIES
Housings

There are two housings suitable for mounting upon the pan and tilt heads shown opposite. They are of aluminium construction and have fastenings made of stainless steel. They are made to IP66 ratings and are of traditional design appearance.

Typically most zoom lenses fit within the standard model 950. However for our, the 30x zoom lens models, the 950 Extended height would be used.

The housings are available with different heater and wiper voltages to suit the application.

These housings are used to contain camera lens combinations where high zoom ratios and excellent picture quality from our high end cameras are needed. Along with the pan and tilt heads, applications are for border control, sea ports, town centres, traffic surveillance, etc.

Note, ordering information. Housing and wiper voltages should be specified at the time of order and our sales staff will be glad to help. Besides the above, other voltages are available upon request.

Perfect Partners

IR lamps Page 62-67

Telemetry Receiver & Controller Page 80/81

FUNCTION & ACCESSORIES					
Internal Dimensions L x W x H	Capacity	Housing	Self parking wiper	Housing & wiper	Voltage options available
		Part code		Housing	Wiper
510x140x140	All Ganz cameras & Computar lens combinations except H30X	900	950	900/950 230VAC or 24VDC	230VAC or 24VDC
510x140x155	All Ganz cameras & Computar lenses	900	Ext Height	900/950	Ext Height

KEY FEATURES:

- Aluminium construction
- IP 66 rated
- Capacity to accept Computar lens and Ganz camera combinations
- Integral self parking wiper
- For use with pan & tilt heads
- Ideal for long distance surveillance

UL 300 / 500

High Powered Infrared Lamps

The UL series of 300W and 500W infrared lamps have been designed to provide an outstanding degree of performance combined with low power consumption and high reliability. The lamps have a high efficiency allowing them to use 50% less power than their equivalent 300W or 500W lamp.

By separating the power supply and the lamp they provide a unit that is much lighter allowing pan and tilts to move more freely and be more reliable, additionally the power to the lamp is low voltage reducing the risk of electric shock.

The COSEC² technology used in the 10° & 30° lamps filters offer even illumination across the scene, eliminating the bright spot in the centre that is traditionally associated with infrared lighting. The wide range of filters, allow the lighting to be used in a wide degree of applications and with a wide range of cameras. From the overt 730nm and semi discrete 830nm general purpose filters on to the 950nm covert filter and the colour corrected white light filter for use with colour cameras coupled with the 300W and 500W lamps provide a lamp and filter for almost any application.

*Various options available, please contact the CBC Sales Team.

UL300-730	IR Lamp 180w 6, 10, 30 or 60 degree beams
UL300-830	IR Lamp 180w 6, 10, 30 or 60 degree beams
UL500-730	IR Lamp 220w 6, 10, 30 or 60 degree beams
UL500-830	IR Lamp 220w 6, 10, 30 or 60 degree beams

Perfect Partners

Colour/Mono Camera
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IR Lens
Page 6

MODEL	UL 300	UL 500
Water Resistance	IP 66	
Radiated Output	300W	500W
Bulb Life	4000 hours	
Consumption	170W	220W
Construction	Aluminium casting/extrusion	
Weight	1.9Kg	2.3Kg
Colour	Black	
Filter Specifications	730nm, 830nm, 950nm Colour corrected white light	
Beam Specifications	6° Spot, 10° Cosec², 30° Cosec², 60° flood	
Ambient Temperature	40° (night time running)	
Power Supply	PSU-3SS or 3ST	PSU-5SS or 5ST
Main Output	230Vac 50Hz	
Voltage Output	Nominal 28Vac adjustable	
Power Output	220VA	420VA
Photocell	Yes	
Remote Control	Yes (via volt free contact with soft start)	
Weight	3.0Kg	5.0Kg
Dimensions (L x W x H)	250 x 160 x 90 mm	

KEY FEATURES:

- Uses 60% less power
- Cosec² provides even illumination
- Light weight
- Wide range of filter options
- Wide range of beam patterns
- High output radiation
- IP66
- Photocell built into PSU

Accessories

UL300-BULB 180w UL300 Replacement Bulb

UL500-BULB 220w UL500 Replacement Bulb

UL300/500-SB Bracket for Single IR Lamp

UL300/500-DB Bracket for Double IR Lamp

*Photo cell built in

UL MINI

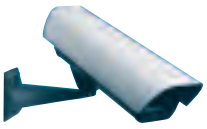
Low Powered Infrared Lamps

The UL-MINI low powered series of infrared lights have been developed to provide lighting in situations where additional lighting is required over a short distance. The UL-MINI has a high powered output efficiency providing the equivalent of 100W of lighting for 30% less power.

The lamp has three angle options 10°, 30°, 60° providing matched angles to the most popular fixed and varifocal lenses. Additionally there are a range of filters available 730nm & 830nm standard filters to 950nm covert filters and the colour corrected white light filter.

UL MINI/730/10	IR Lamp	75w	10 Degrees
UL MINI/730/30	IR Lamp	75w	30 Degrees
UL MINI/730/60	IR Lamp	75w	60 Degrees

Perfect Partners



Housing
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Colour/Mono Camera
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IR Lens
Page 6

MODEL	UL MINI
Water Resistance	IP 66
Radiated Power	100W
Bulb Life	8000 hours
Consumption	70W
Construction	Aluminium
Filters	730nm, 830nm, 950nm, Colour
Beam Patterns	10°, 30°, 60°
Power Supply	220-240Vac
Weight	800g
Dimensions (L x W x H)	
UL-MINI-PSU-S (Single)	120 x 120 x 65 mm, 360g
UL-MINI-PSU-D (Double)	160 x 80 x 65 mm, 600g

KEY FEATURES:

- Low power consumption
- High reliability (8000 hrs)
- Small & Robust

Accessories

UL MINI PSU (S) * Power Supply for 1x UL Mini 230VAC

UL MINI PSU (T) * Power Supply for 2x UL Mini 230VAC

UL MINI BULB 75w UL Mini Replacement Bulb

UL MINI SB Bracket for UL Mini Single

UL MINI DB Bracket for UL Mini Double

*Photo cell built in

UL SUPERLED

High Powered Infrared Lamps

240(l)x180(w)x119(h) mm

SuperLED is designed for night-time CCTV schemes which demand a high level of reliability and minimum maintenance costs. The SuperLED is designed for medium to long range applications where long life is required. It has been developed for external applications with ranges up to 175 metres with IR extended cameras and lenses or up to 100 metres using mid-range cameras.

SuperLED-850 IR Lamp 80-140W 10 and 20 degree beams

UL LED

Low Powered Infrared Lamps

150(l)x108(w)x80(h) mm

The UL-LED is a sold state infrared light utilising light emitting diodes to provide low running costs and high reliability. This lamp is available as either a semi discrete 850nm or covert 940nm infrared lamp. The LED based technology provides almost endless life and takes away the requirement for bulb changing.

UL LED-850 IR Lamp 60w 20 and 30 degree beams

UL MINI LED

Low Powered Infrared Lamps

140(l)x90(w)x90(h) mm

This is an ultra long life, high reliability Infra-Red illuminator using solid state, high efficiency LED's. The UL MiniLED has been developed for indoor and external applications with ranges up to 20 metres using IR sensitive cameras and lenses and is available as either a semi discrete 850nm or covert 940nm infrared lamp. The inherent low power consumption of the solid-state array results in very low running costs over the life of the system.

UL Mini LED-850 70W IR Lamp 30 and 60 degree beams

IR50/100 SERIES

Short-Medium Infra Red Illuminators

The new IR 50 and IR 100 short and medium range LED Infra-Red illuminators provide class leading performance, long life and ultra low maintenance. Both models incorporate the very latest surface mount, high output, high efficiency LED's to deliver excellent night time pictures with improved optical output and outstanding reliability

IR 50 is available in a range of different fixed beam angles. IR 100 is equipped with Adaptive Illumination™ allowing the angle of light projection to be altered between 20 and 60 degrees to fit the specific demands of an installation. Each unit is fitted with a unique Cool Running™ thermal management system to control LED output and LED life. Consequently the IR series has a projected working life of 10 years.

IR series illuminators are provided complete with bracket and power supply and are designed for installation flexibility making them suitable for all low light installations. The power supply has a number of control features including adjustable power output, photocell and telemetry control.

IR50 IR Illuminator 20W 30, 50 or 120° beams
IR100 IR Illuminator 40W Adaptive Illumination 20-60° beams

IR 50

IR 100

Perfect Partners

Mono Camera
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Day/Night Camera
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IR lens
Page 6

MODEL	IR 50	IR 100
Max Distance	15m +	30m +
Angle	30°, 50° or 120°	AI 20-60 degrees
Wavelength	850nm or 940nm	850nm or 940nm
Dimensions (WxHxD)	75 x 100 x 50 mm	155 x 100 x 50 mm
Weight (lamp only)	1 kg	1.7 kg
Environmental Rating	IP66	IP66
Colour	Black	Black
Bracketry (included)	U bracket	AI: top-bottom-wall
PSU	Included	Included
PSU Input Voltage	230V AC +/- 10%	230V AC +/- 10%
Power Consumption	20W max (nominal)	40W max (nominal)

KEY FEATURES:

- Outstanding night-time images
- Adaptive Illumination™ 20-60 degrees on IR 100
- Long Life expected 10 years
- High Power Latest LED technology
- Cool Running™ thermal management
- Even Output Illumination
- Zero light pollution
- Longer distance versions available

IR300/500 SERIES

Long Range Infra Red Illuminators

The new IR 300 and IR 500 long range LED Infra-Red illuminators provide class leading performance, long life and ultra low maintenance. Both models incorporate the very latest surface mount, high output, high efficiency LED's to deliver excellent night-time pictures with improved optical output and outstanding reliability.

IR 300 and IR 500 are equipped with Adaptive Illumination™ allowing the angle of light projection to be altered between 20 and 60 degrees to fit the specific demands of an installation. Adaptive Illumination™ increases the flexibility of the light unit and means that a single product can be adapted to meet the needs of most installations.

Each unit is fitted with a unique Cool Running™ thermal management system to control LED output and LED life. Consequently the IR series has a projected working life of 10 years.

IR series illuminators are provided complete with bracket and power supply and are designed for installation flexibility making them suitable for all low light installations.

The power supply has a number of control features including adjustable power output, photocell and telemetry control.

IR300 IR Illuminator 80W Adaptive Illumination 20-60° beams
IR500 IR Illuminator 120W Adaptive Illumination 20-60° beams

Perfect Partners

IR Lens
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Mono Camera
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Day/Night Camera
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MODEL	IR 300	IR 500
Max Distance	60m +	120m +
Angle	AI 20-60 degrees	AI 20-60 degrees
Wavelength	850nm or 940nm	850nm or 940nm
Dimensions (WxHxD)	205 x 135 x 60 mm	275 x 180 x 66 mm
Weight (lamp only)	2.5 kg	4 kg
Environmental Rating	IP66	IP66
Colour	Black	Black
Bracketry (included)	AI: top-bottom -wall	AI: top-bottom -wall
PSU	Included	Included
PSU Input Voltage	230V AC +/- 10%	230V AC +/- 10%
Power Consumption	80W max (nominal)	120W max (nominal)

KEY FEATURES:

- Outstanding night-time images
- Adaptive Illumination™ 20-60°
- Long Life expected 10 years
- High Power Latest LED technology
- Cool Running™thermal management
- Even Output Illumination
- Zero light pollution
- 10° version covering up to 200m available

WL 100 / WL 300 / WL 500

Medium-Long LED White Light Illumination

Designed to be used with colour or day / night cameras, the new energy efficient WL 100, WL 300 and WL 500 White-Light LED illuminators provide high performance, long life and ultra low maintenance. Each model incorporates the very latest surface mount, high output, high efficiency LED's to deliver excellent night-time pictures with improved optical output and outstanding reliability.

WL units provide colour corrected White-Light and can be used to provide CCTV lighting together with pedestrian and ambient lighting from a single light source. Each unit is equipped with Adaptive Illumination™ allowing the angle of light projection to be altered to fit the specific demands of an installation. Adaptive Illumination™ increases the flexibility of the light unit and means that a single product can be adapted to meet the needs of most installations.

Bracket and power supply are supplied and are designed for installation flexibility.

The power supply has a number of control features including adjustable power output, photocell and telemetry control.

WL100 White Light Illuminator 40W Adaptive Illumination
WL300 White Light Illuminator 80W Adaptive Illumination
WL500 White Light Illuminator 120W Adaptive Illumination

Perfect Partners

IR Lens
Page 6

Mega Pixel Camera
Page 40

Colour & Mono Cameras
Page 28-36

MODEL	WL500	WL300	WL100
Max Distance	up to 60m	up to 30m	up to 15m
Angle	various options	various options	various options
Wavelength	White Light	White Light	White Light
Dimensions (WxHxD)	275 x 180 x 66	205 x 135 x 60	155 x 100 x 50
Weight (lamp only)	4 kg	2.5 kg	1.7 kg
Environmental Rating	IP66	IP66	IP66
Colour	Silver	Silver	Silver
Bracketry (included)	Al: top-bottom-wall	Al: top-bottom-wall	Al: top-bottom-wall
PSU	Included	Included	Included
PSU Input Voltage	230V AC +/- 10%	230V AC +/- 10%	230V AC +/- 10%
Power Consumption	120W max (nominal)	80W max (nominal)	40W max (nominal)

KEY FEATURES:

- C3 colour corrected White-Light for colour and day/night cameras
- Outstanding night-time images
- Adaptive Illumination™
- Long Life expected 10 years
- High Power Latest LED technology
- Cool Running™ thermal management
- Even Output Illumination
- Ultra wide angle versions available
- Longer distance versions available

WL-MH

Colour Corrected Metal Halide Fittings (short range)

The WL-MH series of White-Light Metal Halide illuminators give perfect colour output and industry leading long life and low power consumption for bulb based illuminators. They are designed to be used with colour or day/night cameras to provide excellent night-time pictures.

The units provide perfect White-Light through a C3 Colour Corrected and Calibrated spectral management system. The emitted White-Light is suitable for all night-time applications requiring visible illumination and can be used not only to provide CCTV lighting but also pedestrian lighting - all from a single illuminator.

The circular version provides higher light output up to 40 m.
The asymmetrical version provides slightly lower light output but delivers even illumination and lower light pollution in line with Government legislation. The units are provided complete with bracketry and stone guard and simply require mains power input.

WL-MHC White Light Metal Halide Illuminator, Circular version
WL-MHA White Light Metal Halide Illuminator Asymmetric version

KEY FEATURES:

- Circular version -high power to 40m
- Asymmetric version - for even illumination and low light pollution
- Long Life -expected 3 years
- 150W low electrical consumption
- Fitted with stone guard
- C3 Colour Correction and calibration

WL SERIES ACCESSORIES

SB1 Single mounting bracket for top mount P/T heads
Suitable for all IR and WL series lamps
Mounts single lamp

DB2 Dual mounting bracket for top mount P/T heads
Suitable for all IR and WL series lamps
Mounts two lamps

PB3 Pole Clamp mounting bracket - 3 way
Suitable for all IR and WL series lamps
Mounts upto three lamps
Can provide upto 270+ degree coverage

PB4 Pole Clamp mounting bracket - 4 way
Suitable for all IR ad WL series lamps
Mounts upto four lamps
Can provide upto 360 degree coverage

LB1 L Bracket for wall mount applications
Suitable for all IR and WL series lamps

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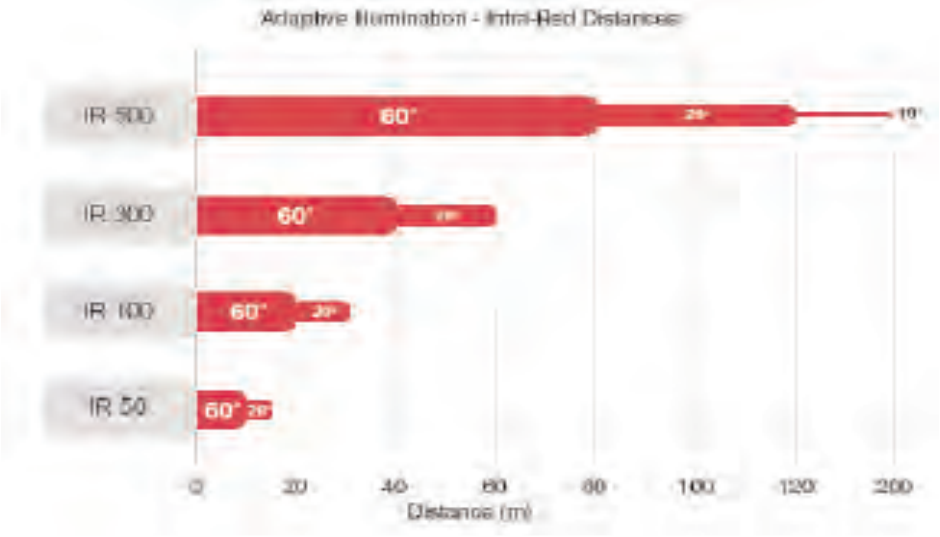
Definition of Infra-Red

Infra-Red is a light that the human eye cannot see but monochrome or day / night CCTV cameras can. It is available in a range of wavelengths including 730nm (visible red glow) to semi-covert 850nm or fully covert 950nm. Distances are always reduced when using longer wavelength lamps.

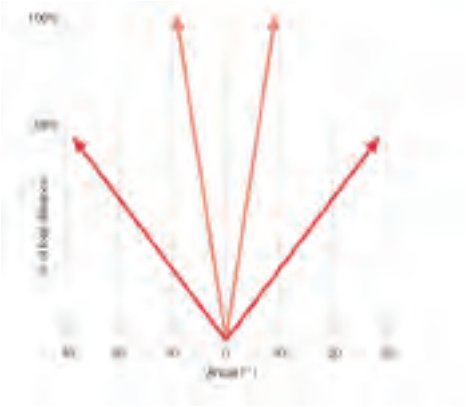


Adaptive Illumination (AI)

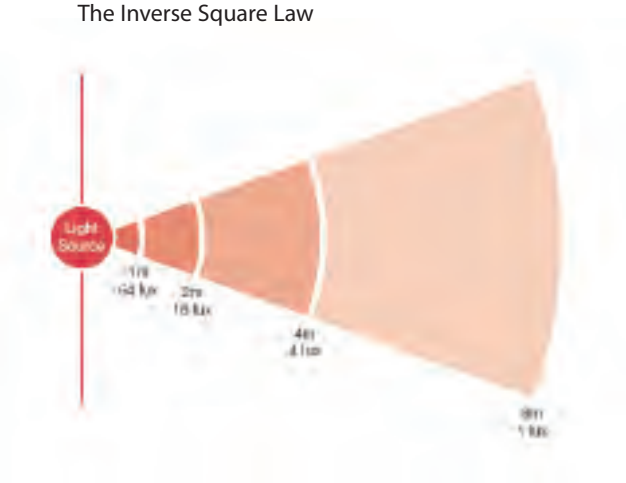
Designed in both White-Light and Infra-Red variations, Adaptive Illumination™ allows the installer to adjust the angle of the light projection from a single unit to fit the specific installation. Adjustment is quick and convenient and a number of angles from 20-60 degrees are easily selected. For fully functional dome cameras, specifically designed 180 degree versions are available.

Narrow Angle

Wide Angle



The Inverse Square Law



The diagram to the left shows how quickly light degrades over distance; 64 lux at 1 metres is equivalent to only 1 lux at 8 metres.

The energy twice as far from the source is spread over four times the area, hence is one quarter the intensity. Therefore, to achieve the same amount of light at double the distance from the light source, 4 times the amount of light must be used.

Using 2 illuminators will increase the distance by a factor of 1.4
Using 4 illuminators will increase the distance by a factor of 2

72-75 DVRs

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Control Room at a glance

9/16 Channel DVRs

Remote Control

External Storage

Mpeg4 DVRs

1 Channel DVR

VCRs

Quad

Multiplexer

Matrix

Keyboards

Matrix

Telemetry

LCD Monitors

CRT Monitors

Simple Stand alone system	Mid size system	Control system	Multiple DVR system

ZR-DH SERIES

9 &16 Channel TRIPLEX+ Digital Recorders with built in Multiplexer and Telemetry

Perfect Partners

Keyboard
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CD-Writer

External Storage

The ZR-DH series of 9 & 16 channel TRIPLEX+ DVRs combine flexibility, versatility and usability in a single unit. The DVR allows the operator to play, record, and view multi-screen at the same time. In addition, remote view and record can be achieved over the TCP/IP network when using the free client software.

The DVR has internal space for 4 x HDD, with the ability to add additional space of up to 20 further HDDs via the high speed firewire port.

Controlling the DVR remotely couldn't be more simple. This can be achieved by using the C-DKBD keyboard or, alternatively over TCP/IP connection with the client software or internet explorer.

Event archiving is straight forward. This can be done through a wide range of mediums including USB memory stick, CDR-W, (USB or Firewire versions), or over TCP/IP. Each unit incorporates automatic daylight saving time adjustment through an inbuilt calendar or can be continually adjusted via the network time protocol.

ZR-DH921NP-160 9 Channel Triplex+ DVR, 160GB
ZR-DH921NP-320 9 Channel Triplex+ DVR, 320GB
ZR-DH1621NP-640 16 Channel Triplex+ DVR, 640GB
ZR-DH1621NP-1TB 16 Channel Triplex+ DVR, 1TB
*Other options of hard drives available upon request

MODEL	ZR-DH921NP	ZR-DH1621NP
Video Format	PAL/NTSC	
Compression System	Video: Wavelet, Audio: AC97	
DVR Type	TRIPLEX +	
Operating System	Embedded Linux	
Video Input	9 x Composite 1.0Vp-p auto terminating	16 x Composite 1.0Vp-p auto terminating
Audio In / Out	1 channel mono	
Screen Options	1, 4, 6, 7, 8, 9, PIP	1, 4, 6, 7, 8, 9, 10, 13, 16, PIP
Record Modes	Manual, continuous, alarm, motion	
Record Speed PAL 100fps, NTSC 120fps @ 360 x 280	PAL 50fps, NTSC 60fps @ 720 x 280,	
Quality Setting	7 levels	
Pre and Post Alarm	Yes	
Motion Detection	Yes, programmable per camera	
Telemetry Control	Yes, multi-protocol (C-Dome, Ganz Dome, Pelco P, Pelco D, BBV, AD, Panasonic, Vicon)	
Time Syncronisation	NTP or master/slave	
Software Update	USB or FTP	
Notification	On screen, relay output, email, log	
Dimensions	432 (W) x 88 (H) x 450 (D) mm	
Weight / Mounting	10Kg (no HDD) / Desk or Rack Rack kit supplied	
Power Consumption	50W excluding HDDs	
Input Voltage	115VAC or 230VAC	
Operating Conditions	0 to 40° C, 10 ~ 80%, no condensing	

KEY FEATURES:

- TRIPLEX+
- Wavelet compression
- Multiple display options
- Telemetry control of PTZ
- Remote control via C-DKBD
- Jog/shuttle control of recorded images
- Expandable external storage
- Networkable
- Event archive via USB, Firewire, TCP/IP
- Free Client software
- Multi-password protection
- Automatic DST/GMT adjustment

ASSOCIATED SYSTEM DEVICES

C-DKBD & C-D16M2 providing remote control of the DVR and RS485 or COAX control of the C-dome series
Event back up via firewire with external HDD or CDRW
ZR-DH-CDRW-FW
Firewire CDRW drive
External Firewire HDD drive
ZR-DH-4BAY
External storage for DVR with space for 4 HDD, 4 additional boxes can be added (external 20HDD) giving maximum external storage capability of 10TB
ZR-DH-MS-USB
USB memory stick
Portable USB HDD
Back up of events via USB with CDRW, USB memory stick or USB HDD
ZR-DH-CDRW-USB
USB CDRW
P9125 – 1KVA to 6KVA
Online sereis of UPS, stabalising line voltage, line filtering and protecting the DVR and recorded data from power loss
ADSL Router
PC running client software allowing live, playback, PTZ control, programming & event archive of the DVR via LAN or WAN
PC running Internet explorer allowing live, playback and PTZ control of DVR via LAN or WAN

Main DVR recorder
ZR-DH1621NP 16 channel DVR with 640GB or 1TB storage on board
ZR-DH921NP 9 channel DVR with 160GB or 320GB storage on board

C-MP DVR SERIES

MPEG4 DVR

The C-MP DVR series of 4, 8 & 16 channel MPEG4 Pentaplex DVRs combine the latest compression technology with a simple user interface. The units come with a built-in CDRW and HDD providing storage of up to 500GB.

The Pentaplex function (Pentaplex means view, record, archive locally, view and record remotely)* allows the operator to view live information & playback information on the same display whilst backing up a previous event. During this time the record process is uninterrupted and an additional operator could be viewing via the network connection.

The MPEG4 compression allows the DVR to achieve maximum recording efficiency for the available hard disk drive. Space is extended when compared to other compression techniques.

The recording function can be programmed for continuous, alarm or motion recording. Additionally these recordings can be scheduled to start and stop and different parts of the day.

Event backup is done via the built in CDRW or DVD Writer.

Ordering Information
C-MP DVR - 04/08/16 Mpeg4 DVRs 160Gb
* Other options of Hard drive available upon request

Perfect Partners

CD-V Dome
Page 21

CS Mount Cameras
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IR Camera
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KEY FEATURES:

- Pentaplex*
- MPEG4 compression
- TCP/IP control through client
- IR remote control
- Search via time/date, motion or alarm
- Built in drive for event back up (CDRW or DVD)
- Expandable external storage
- Firmware upgrade via USB, Fi
- Password protection
- Realtime recording in CIF mode

MODEL	C-MP DVR04	C-MP DVR08	C-MP DVR16
Video format	PAL/NTSC		
Compression system	MPEG4		
DVR type	TRIPLEX		
Operating system	Embedded Linux		
Video input	4x Composite 1.0Vp-p auto teminating	8x Composite 1.0Vp-p auto teminating	16x Composite 1.0Vp-p auto teminating
Audio in/out	Yes		
Record modes	Continuous, alarm, motion		
Record speed			
Frame (720 x 576)	25ips PAL/ 30ips NTSC	50ips PAL/ 60ips NTSC	100ips PAL/ 120ips NTSC
CIF (352 x 288)	100ips PAL/ 120ips NTSC	200ips PAL/ 240ips NTSC	400ips PAL/ 480ips NTSC
Motion detection	Yes, programmable per camera		
Software update	USB		
Notification	By email or FTP uplopad		
Dimension	432mm (w) x 90mm (h) x 326mm (d)		
Weight / mounting	4Kg (no HDD) / Desk mount		
Power consumption	64W including HDDs		
Input voltage	19VDC or 100-260VAC with supplied power adaptor		
Operating conditions	0 - 40 degrees C		

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DVR RECORDING TIMES

ZR-DH1621NP 16 channel DVR with 640GByte or 1Tbyte fitted

Images per sec per camera		3fps		2fps		1fps		1f/ 2sec		1f/3sec		1f /4sec	
Disk size (Gbytes)		640	1000	64	1000	64	1000	640	1000	640	1000	640	1000
Record quality	Record time in												
Q7	days and hours	8d 13hrs	13d 9hrs	12d 20hrs	20d 2hrs	25d 17hrs	40d 4rs	51d 10hrs	80d 9hrs	77d 3hrs	120d 13hrs	102d 21hrs	160d 18hrs
Q6		9d 1hrs	14d 4hrs	13d 14hrs	21d 6hrs	27d 5hrs	42d 13hrs	54d 11hrs	85d 2hrs	81d 16hrs	127d 16hrs	108d 22hrs	170d 4hrs
Q5		10d 6hrs	16d 1hrs	15d 10hrs	24d 2hrs	30d 20hrs	48d 5hrs	61d 17hrs	96d 10hrs	92d 14hrs	144d 16hrs	123d 10hrs	192d 21hrs
Q4		11d 20hrs	18d 13hrs	17d 19hrs	27d 19hrs	35d 14hrs	55d 15hrs	71d 5hrs	111d 6hrs	106d 20hrs	166d 22hrs	142d 10hrs	222d 13hrs
Q3		15d 10hrs	24d 2hrs	23d 3hrs	36d 4hrs	46d 7hrs	72d 8hrs	92d 14hrs	144d 16hrs	138d 21hrs	217d 0hrs	185d 4hrs	289d 8hrs
Q2		22d 1hrs	34d 10hrs	33d 1hrs	51d 16hrs	66d 3hrs	103d 8hrs	132d 6hrs	206d 16hrs	198d 9hrs	310d 1hrs	264d 13hrs	413d 8hrs
Q1		30d 20hrs	48d 5hrs	46d 7hrs	72d 8hrs	92d 14hrs	144d 16hrs	185d 4hrs	289d 8hrs	277d 18hrs	434d 1hrs	370d 8hrs	578d 16hrs

ZR-DH921NP 9 channel DVR with 160GByte & 320GByte fitted

Images per sec per camera		5 ips		3 ips		2 ips		1 ips		1 image/2sec		1 image /3sec	
Disk size (Gbytes)		160	320	160	320	160	320	160	320	160	320	160	320
Record quality	Record time												
Q7	days and hours	1d 6hrs	2d 13hrs	2d 3hrs	4d 6hrs	3d 5hrs	6d 10hrs	6d 10hrs	12d 20hrs	12d 20hrs	25d 17hrs	19d 11hrs	38d 23hrs
Q6		1d 8hrs	2d 17hrs	2d 6hrs	4d 12hrs	3d 9hrs	6d 19hrs	6d 19hrs	13d 14hrs	13d 14hrs	27d 5hrs	20d 15hrs	41d 6hrs
Q5		1d 13hrs	3d 2hrs	2d 13hrs	5d 3hrs	3d 20hrs	7d 17hrs	7d 17hrs	15d 10hrs	15d 10hrs	30d 20hrs	23d 9hrs	46d 18hrs
Q4		1d 18hrs	3d 13hrs	2d 23hrs	5d 22hrs	4d 10hrs	8d 21 hrs	8d 21hrs	17d 19hrs	17d 19hrs	35d 14hrs	26d 23hrs	53d 23hrs
Q3		2d 7hrs	4d 15hrs	3d 20hrs	7d 17hrs	5d 18hrs	11d 13hrs	11d 13hrs	23d 3hrs	23d 3hrs	46d 7hrs	35d 1hrs	70d 3hrs
Q2		3d 7hrs	6d 14hrs	5d 12hrs	11d 0hrs	8d 6hrs	16d 12hrs	16d 12hrs	33d 1hrs	33d 1hrs	66d 3hrs	50d 2hrs	100d 5hrs
Q1		4d 15hrs	9d 6hrs	7d 17hrs	15d 10hrs	11d 13hrs	23d 3hrs	23d 3hrs	46d 7hrs	46d 7hrs	92d 14hrs	70d 3hrs	140d 7hrs

MPEG4 DVR 4, 8, 16 channel DVRs with 160GByte HDD fitted

Record speeds		16 channel				8 channel				4 channel			
720 x 576	Frame	100 ips	50 ips	25 ips	12.5 ips	50 ips	25 ips	12.5 ips	6 ips	25 ips	12.5 ips	6 ips	3 ips
360 x 288	CIF	400 ips	200 ips	100 ips	50 ips	200 ips	100 ips	50 ips	25 ips	100 ips	50 ips	25 ips	12 ips
Record quality		Record time in days & hours											
Best	Frame	1d 17hrs	3d 1 hrs	5d 14hrs	9d 0hrs	3d 11hrs	6d 3hrs	11d 4hrs	18d 1hrs	6d 23hrs	12d 6hrs	22d 8hrs	36d 3hrs
	CIF	2d 2hrs	3d 15hrs	6d 16hrs	10d 18hrs	4d 4hrs	7d 7hrs	13d 8hrs	21d 13hrs	8d 8hrs	14d 15hrs	26d 16hrs	43d 2hrs
High	Frame	2d 5hrs	3d 21hrs	7d 1hrs	11d 10hrs	4d 10hrs	7d 18hrs	14d 3hrs	22d 20hrs	8d 20hrs	15d 12hrs	28d 7hrs	45d 17hrs
	CIF	2d 22hrs	5d 3hrs	9d 9hrs	15d 4hrs	5d 20hrs	10d 7hrs	18d 19hrs	30d 8hrs	11d 17hrs	20d 15hrs	37d 14hrs	60d 17hrs
Normal	Frame	2d 21 hrs	5d 2hrs	9d 7hrs	15d 0hrs	5d 19hrs	10d 4hrs	18d 14hrs	30d 0hrs	11d 14hrs	20d 9hrs	37d 4hrs	60d 1hrs
	CIF	3d 20hrs	6d 18hrs	12d 8hrs	19d 23hrs	7d 17hrs	13d 13hrs	24d 17hrs	39d 23hrs	15d 11hrs	27d 3hrs	49d 11hrs	79d 22hrs
Basic	Frame	4d 16hrs	8d 5hrs	15d 0hrs	24d 6hrs	9d 9hrs	16d 11hrs	30d 1hrs	48d 13hrs	18d 18hrs	32d 23hrs	60d 2hrs	97d 2hrs
	CIF	5d 8hrs	9d 9hrs	17d 3hrs	27d 16hrs	10d 17hrs	18d 19hrs	34d 6hrs	55d 8hrs	21d 10hrs	37d 15hrs	68d 12hrs	110d 17hrs

ZR-DH111NP

Single Channel Digital Video Recorder

KEY FEATURES:

- M-JPEG compression
- Variable playback speed
- Time lapse and real time recording
- Event archive to compact flash
- Configurable recording quality
- Ethernet TCP/IP connection
- Audio recording capability
- Multi-level password protection

The ZR-DH111NP single channel digital video recorder is a true VCR replacement, providing high resolution digital recording. It can record at speeds up to 60/50 images per second with NTSC/PAL formats and replay events instantly.

Recording can be carried out manually using the timer or via alarm. Individual images and sequences that have been saved can be retrieved via the compact flash card. The LAN interface integrates the digital recorder with existing networks allowing the operator to view recordings remotely.

ZR-DH111NP 1 Channel DVR, 250 GB

CTR-4000 SERIES

Time Lapse Video Cassette Recorders

KEY FEATURES:

- Forward and reverse playback and frame by frame switching
- Timer recording
- Alarm ready even when unit is switched off
- Alarm search facility
- On-screen display

All programming is provided through simple and easy to navigate on screen menus. The VCRs can be configured to record continuous mode, providing 24 hour coverage in any system, or it can be switched to alarm/event mode allowing the system to only record when it is in alarm even when the VCR is placed in the standby mode.

The units are also fitted with battery back up allowing the unit to store all programming, even during the event of a power failure. The menu display will also provide the last four such power failures with the power off time and power on time.

The big display on the front of the VCR unit allows an update of the exact current settings and operation of the VCR.

CTR-4024 Time Lapse VCR 24 Hour 230VAC
CTR-4960 Time Lapse VCR 960 Hour 230VAC

QD-04P

4 Channel Colour Quad

The QD-04P quad processor provides the facility of displaying 4 cameras on the monitor simultaneously. The system can also provide these cameras as a full screen image or as part of a sequence. The Quad can also provide a separate output to be connected directly to a VCR this allows the operator to view any camera without affecting the recording.

The unit has 4 alarm inputs for connection to external alarm devices, on activation these will cause the monitor to display the alarm camera and for a buzzer to sound. Additionally it will add an event to the event log. The event log allows the administrator to view the status of the system for a given period, advising him of video loss and alarm inputs.

QD-04P Colour Quad with Switching 12VDC

KEY FEATURES:

- 4 Channel Colour Quad
- On-screen set up menus
- Electronic playback zoom
- Real time display (25 pictures per sec)
- Quick remote conrol via PC
- 4 Alarm inputs
- 230 VAC power adaptor supplied

D-PLEX 16 ECO

16 Channel Duplex Multiplexer

The D-PLEX multiplexer has the facility for activity detection, which allows each camera to be configured to respond the movement in the camera view. Upon detection, the unit varies the recording speed.

Additionally areas may require hardware detectors such as door sensors, PIRs, long range beams and these can also be integrated into the system by using alarm inputs on the rear of the multiplexer.

When in multiscreen, the operator can configure the different screen formats by selecting which cameras are shown and which order they appear, added to this is the menu option to configure the contrast, brightness and colour level of the incoming cameras allowing the images to be set to the same level to improve the viewing image for the operator.

D-PLEX 16-ECO Colour Duplex Multiplexer 12VDC

KEY FEATURES:

- Full duplex functions
- Activity detection
- Alarm inputs
- Camera titling
- RS232/RS485 remote control via PC
- VCR switch pulse compatible
- Automatic gain control
- 230 VAC power adaptor supplied

C-D SERIES

Small Dome Matrix Systems

For use with the C-Dome range and controlled from the C-DKBD keyboard the two small intelligent matrix models, C-D08M2 (8 x 2) and the C-D16M2 (16 x 2) provide switching for 8 or 16 cameras respectively through dual monitor outputs. Up to 2 control keyboards can be connected to each matrix unit for dual system control.

Either coax or twisted pair telemetry control can be routed via each of the matrix switches and, additionally, with 360 presets per dome, standard and mimic tours stored in memory, it only partly describes how powerful these units are. But there's more, up to 144 alarm inputs can be used to call up any of the presets or tours.

For the twisted pair RS 485 control there is a star distribution module, C-D-STAR485, that can be used to solve the most ergonomic wiring configurations.

Perfect Partners

Keyboard
Page 79

C-Dome Range
Page 42

QUICK GUIDE, ACCESSORIES AND RELATED PRODUCTS — **ORDERING CODES**

Camera inputs	Monitor outputs	Control points	Telemetry via Coax	Telemetry via RS485 TP	
8	2	2	Yes	Yes	C-D08M2
16	2	2	Yes	Yes	C-D16M2
Accessories					
Star driver for RS485 star configuration					C-D-STAR485
Related products					
Keyboard	page 79				C-DKBD
C-Domes	page 42/43				C-D range

KEY FEATURES:

- Intelligent 8 and 16 camera matrix switches with dual monitor outputs
- Up to 2 control positions for flexible monitoring
- Either Coax or twisted pair telemetry for versatility and ease of installation
- Up to 144 alarm inputs for call up of accurate camera preset positions and tours
- Time and date display with camera ID
- Star card for easy twisted pair wiring

C-DKBD KEYBOARD

Control Keyboard

The C-DKBD Keyboard is designed to operate with both C-Domes and high end ZR-DH1621/921 DVR's. Utilising a 3 axis joystick, controlling and programming both the domes or DVR's is simple.

Switching and controlling the matrix is also very simple. When connected to the domes, full variable speed and preset configuration is possible along with programming of standard and mimic tours. Even control of lift and gain in the dome head is possible. Add to this privacy zone settings and an ability to finely control the C-Domes 400,000 position stepper motors at variable speed then it becomes clear that this is a powerful keypad.

Should one wish to control the DVR remotely all functions such as screen split, search functions, programming, recording speeds and quality settings, etc, are possible.

Keyboard layout is designed for the most ergonomic approach so dedicated keys such as preset, tours, play and record buttons are easy to see and use. Combining the DVR and C-Dome means that there is no need for a matrix for up to 16 cameras when used with RS 485 telemetry. The C-DKBD comes complete with a PSU.

Perfect Partners

C-Dome Range
Page 42

ZR-DH1621NP
Page 72

Matrix
Page 78

QUICK GUIDE, ACCESSORIES AND RELATED PRODUCTS ORDERING CODES

Camera inputs	Monitor outputs	Control points	Telemetry via Coax	Telemetry via RS485 TP	
8	2	2	Yes	Yes	C-D08M2
16	2	2	Yes	Yes	C-D16M2
Accessories					
Star driver for RS485 star configuration				C-D-STAR485	

CONFIGURATION GUIDE

Requirement	Telemetry	Control keyboard	Matrix	DVR	Cameras
Switching, programming and control of 8 or 16 PTZ domes & cameras	RS 485 COAX	C-DKBD-RS485 C-DKBD-COAX	C-D08M2 or C-D16M2	Not used	C-D range & any other non-PTZ camera
As above but with digital recording (including programming and control of DVR)	RS 485	C-DKBD-RS485	Not used	ZR-DH921NP ZR-DH1621NP	C-D range & any other non PTZ camera
	COAX	C-DKBD-COAX	C-D16M2		
As above but with networking and archiving	See page 89 for system layout				

KEY FEATURES:

- High accuracy control and programming of Domes, Matrix and DVR's from a single keyboard
- 3 axis joystick for fine control of zoom, pan and tilt on the dome to ensure nothing is missed.
- Full variable speed control.
- No need for a matrix switcher when using a DVR with C-Domes (RS 485) and other cameras.
- Time and date display with camera ID

ZP-TX/RX SERIES

Matrix & Telemetry System

The ZP-TX/RX series of matrix systems and accessories provides matrix switching and control of cameras from 16 through to 96 cameras. The unique structure of the system allows you to install what you need and expand the system when the site requires.

The system supports coaxial or RS485 based telemetry systems making it simple to upgrade fixed cameras to PTZs or run long distances through fibre optics or similar links.

Alarms can be added to the system using the 16 input alarm cards. Up to 6 of these alarm cards can be added providing 96 inputs. The alarm cards can be distributed along the RS485 bus allowing simple installation and wiring. Control of existing PTZs and domes can be achieved by using the starcard converter or the ZP-RX100 dome converter. The majority of the popular protocols are built into these devices.

The ZP-TX1500 matrix system is simple to operate and provides sophisticated features usually found on high end complex matrix systems. A typical feature is the camera/monitor/keyboard selection set up which allows the system to be configured so that cameras can be restricted from certain monitors and keyboards and only specific keyboards can be allowed PTZ control of cameras.

Perfect Partners

Zoom Lens Page 10

Large Housing
Page 61

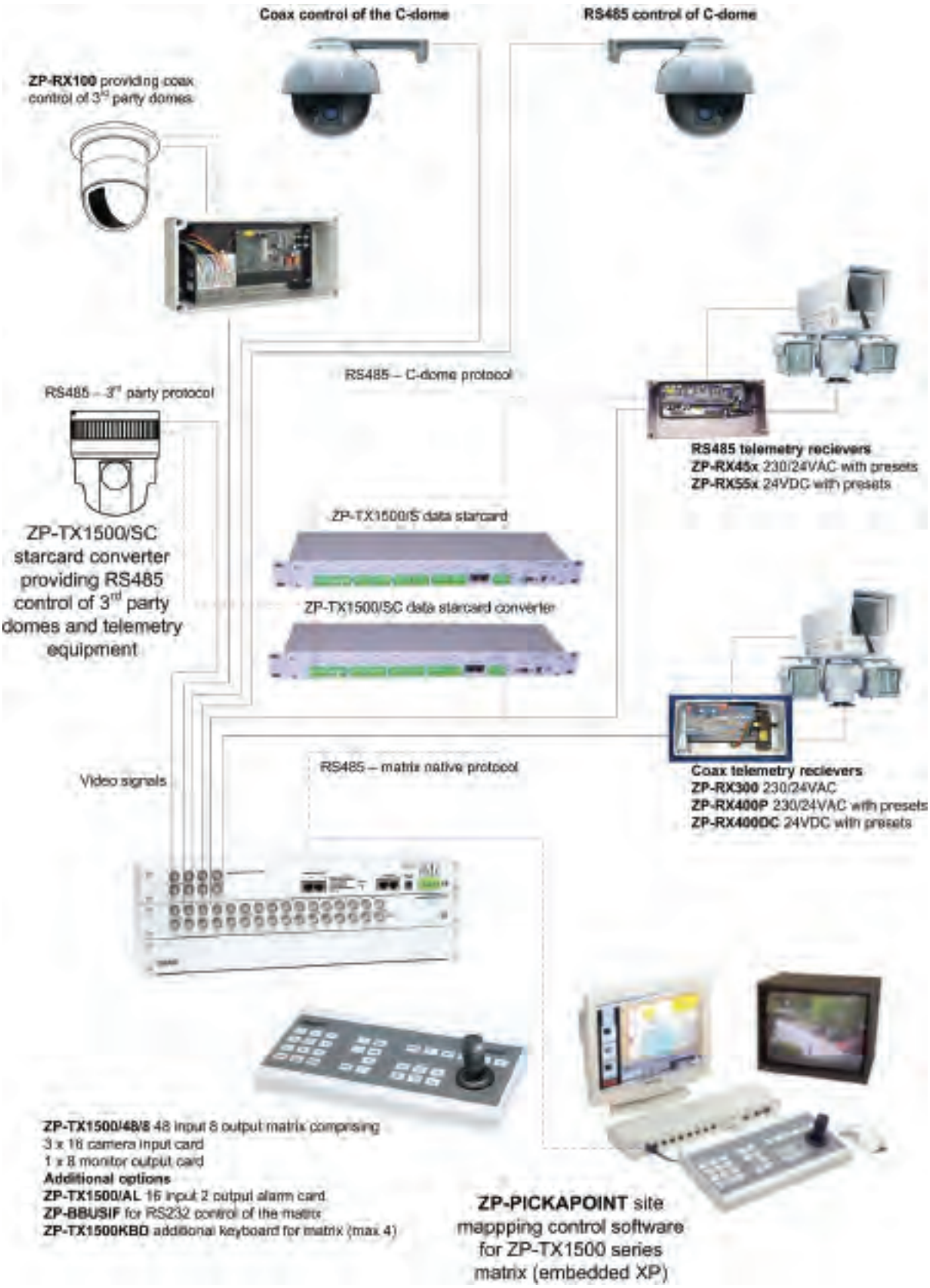
ZR-DH1621NP Page 72

ORDERING CODE	DESCRIPTION
ZP-TX1500/8	Matrix unit with 1 keyboard (nn denotes camera input quantity) 8 monitor outputs
ZP-TX1500/EXP	Onsite expander unit (to expand exisitng matrix by 16 cameras up to 96)
ZP-TX1500/KBD	Additional keyboard for ZP-TX1500 matrix
ZP-TX1500/S	RS485/RS422 starcard
ZP-TX1500/SC	RS485/RS422 starcard converter, outputs a wide range of industry protocols
ZP-TX1500/AL16	16 alarm input, 2 alarm output card
ZP-RX100	Coax telemetry dome interface, allowing control of many of the industries domes
ZP-RX100/24	As above with 24VAC PSU for dome
ZP-RX300WBX	Coax telemetry reciever for simple AC P&T, plus lens control
ZP-RX400P	Coax telemetry reciever , fully featured for AC P&T plus lens, aux controls and presets
ZP-RX400DC	Coax telemetry reciever , fully featured for DC P&T plus lens, aux controls and presets
ZP-RX45x/WBX	RS485(multi portocol) telemetry reciever , fully featured for AC P&T plus lens, aux controls and presets
ZP-RX55x/WBX	RS485(multiprotocol) telemetry reciever , fully featured for DC P&T plus lens, aux controls and presets

KEY FEATURES:

- 16 – 96 cameras
- Simple to expand
- Telemetry control of PTZ via coax or RS485
- Control of many protocols
- Wide range of dome interfaces
- Password protection
- Up to 96 alarm inputs
- Easy to setup on screen displays
- Telemetry receivers for AC & DC pan & tilts
- Site mapping & control software

MATRIX SYSTEM


Coax control of the C-dome
RS485 control of C-dome
ZP-RX100 providing coax control of 3rd party domes
RS485 – C-dome protocol
RS485 – 3rd party protocol
RS485 telemetry recievers
ZP-RX45x 230/24VAC with presets
ZP-RX55x 24VDC with presets
ZP-TX1500/S data starcard
ZP-TX1500/SC data starcard converter
ZP-TX1500/SC starcard converter providing RS485 control of 3rd party domes and telemetry equipment
Coax telemetry recievers
ZP-RX300 230/24VAC
ZP-RX400P 230/24VAC with presets
ZP-RX400DC 24VDC with presets
Video signals
RS485 – matrix native protocol
ZP-TX1500/48/8 48 input 8 output matrix comprising
3 x 16 camera input card
1 x 8 monitor output card
Additional options
ZP-TX1500/AL 16 input 2 output alarm card
ZP-BBUSIF for RS232 control of the matrix
ZP-TX1500KBD additional keyboard for matrix (max 4)
ZP-PICKAPOINT site mappping control software for ZP-TX1500 series matrix (embedded XP)

ZM-L SERIES

Colour Series of TFT LCD Monitors

Perfect Partners

The metal cased ZM-L series of TFT LCD monitors have been designed to provide high quality clear and bright images.

Three sizes are available; 15", 17" and 20" models. The ZM-L TFT LCD monitors also provide access to OSD (On Screen Display) controls and has built in multi-media speakers.

These TFT LCD Monitors are slim, lightweight and portable with resolution of 500 TVL.

The TFT LCD Monitors work with both PAL and NTSC signals and in a voltage range of 100 – 240 Vac, allowing the units to be used virtually all over the world.

ZM-L215VC 15" TFT LCD, NTSC/PAL 500 TVL VGA/Composite Input
ZM-L217VC 17" TFT LCD, NTSC/PAL 500 TVL VGA/Composite Input
ZM-L220C 20" TFT LCD, NTSC/PAL 500 TVL Composite Input

Wall Mount Brackets

ZMA-WB2
2 knuckles Page 54

ZMA-WB3
3 knuckles Page 54

KEY FEATURES:

- 15", 17", and 20" models
- Clear & bright colour pictures
- PIP (picture in picture feature)
- Wide viewing angle
- NTSC/PAL auto mode
- Multi language OSD control
- Universal power supply

MODEL	ZM-L215VC	ZM-L217V C	ZM-L220C
Video Signal	PAL / NTSC auto mode		
LCD Display	15"	17"	20"
Pixel Pitch	0.297(H) x 0.297 (V)mm	0.264(H) x 0.264 (V)mm	0.51 (H) x 0.51 (V)mm
Resolution	1024 x 76	500 TVL 1280 x 1024	–
Scan Frequency (H) (V)	30K~80Khz 56Hz~75Hz	30K~80Khz 56Hz~75Hz	–
Display Mode	VGA, DVI, Composite, S-Video, Component	VGA, DVI, Composite, S-Video, Component	Video, S-Video
Signal Connector	VGA in, DVI in (option), BNC in/out, Y/C in/out, Y Cb Cr in (option), Audio in/out		Video 1.0 Vp-p 75 ohm BNC in/out, YC in/out, audio in/out
OSD Menu VGA / DVI VIDEO	Brightness, Contrast, H-Position, V-Position, Clock, Phase, Colour temp, User colour R, User colour G, User Colour B, OSD H-Pos, OSD V-Pos, Volume, PIP, Language, Recall Colour, Brightness, Contrast, Sharpness, Volume, H-Position, Language, Colour temp, Scan, PIP, Recall		
Audio Speaker	1W (Max,)		
Power Requirement	12V	100 ~ 240V	100 ~ 240V
Power Consumption	40W	50W	60W
Operating Conditions	0 to 40°		
External Dimensions in mm (W x H x D)	353.2 x 338 x 170	375 x 369.7 x 170	505.2 x 475.7 x 182
Weight (approximate)	4 kg	5 kg	10.8 kg

ZM-CR SERIES

Colour Series of CRT Monitors

The ZM-CR series of monitors have been designed to provide both high quality images and be highly reliable and robust monitor. All four key sizes of control room monitor are provided for within the range in the sizes of 9", 14", 15", and 21".

All the monitors are provided with a robust metal casing, the 14", 15" & 21" model come with the additional feature of carry handles to make the installation process easier.

All the monitors in the range work with both PAL and NTSC signals and in a voltage range of 100 – 240 Vac allowing the monitors to be used virtually all over the world.

ZM-CR109NP 9" Col 300 TVL Metal Case Monitor w/ Audio 230VAC
ZM-CR114NP 14" Col 400 TVL Metal Case Monitor w/ Audio 230VAC
ZM-CRH115NP 15" Col 650TVL Metal Case Monitor w/ Audio 230VAC
ZM-CR121NP 21" Col 450 TVL Metal Case Monitor w/Audio 230VAC

Perfect Partners

Monitor Brackets

MISC (Ceiling mount)
Page 54

MISW (Wall mount)
Page 54

KEY FEATURES:

- 9", 14", 15" and 21" models
- PAL & NTSC compatible
- Dual Voltage 100-240 Vac
- High Resolution (15" model)
- OSD set up
- Y/C input (14" 15" and 21")

MODEL	ZM-CR109NP	ZM-CR114NP	ZM-CR121NP	ZM-CRH115NP
CRT	9" Diagonal 90°	14" Diagonal 90°	21" Diagonal 90°	15" Diagonal 90°
Video Signal	PAL/NTSC			
Resolution	300 TVL	400 TVL	450 TVL	650 TVL
	Video In/Out 2 x Composite input (1x in BNC 1x out BNC each) 1 x Y/C input (4 pin SVHS connector)			
Audio In/Out	Yes			
Scanning Frequency	15.734KHz (NTSC) / 15.625 KHz (PAL) Vertical 60Hz (NTSC) / 50Hz (PAL)			
Connector	Video A/B in/out: BNC connector x 4, Auto Termination Y/C in/out: Mini Din 4-pin Connector x 2, Auto Termination Audio in/out: RCA phone connector x 2			
Power Requiements	100-240Vac			
Power Consumption	50w	70w	80w	70w
Operating Conditions	0 to 40°			
External Dimensions in mm (W x H x D)	222 x 322 x 232	350 x 387x 330.5	490 x 475 x 450	363 x 379 x 353
Weight (approximate)	7.4 kg	13.2 kg	24 kg	14.5 kg

CEM-II SERIES

Mono Series of CRT Monitors

The CEM range of Ganz monitors have been designed to be rugged and reliable high quality monitors, providing high quality images in the most demanding of conditions. There are four monitors in the range: 9", 12", 15" and 20".

The 9" and 12" monitors are fitted with a wide-ranging power supply, allowing them to work on voltages from 100Vac to 260Vac. The 15" and 20" monitors have audio facilities.

The resolution on all monitors is 1000 TVL. Controls on the front allow adjustment of contrast, brightness and volume. The connections to the monitor are industry standard connectors and are situated on the rear.

CEM-09-II 9" B&W 1000 TVL Metal Case Monitor 100 - 240VAC
CEM-12-II 12" B&W 1000TVL Metal Case Monitor 100 - 240VAC
CEM-15A 15" B&W 1000 TVL Metal Case Monitor 230VAC with Audio
CEM-20A 20" B&W 1000 TVL Metal Case Monitor 230VAC with Audio

Perfect Partners

Monitor Brackets

MISC (Ceiling mount)
Page 54

MISW (Wall mount)
Page 54

KEY FEATURES:

- 9",12",15" & 20" options
- 100-260Vac (9" &12")
- Audio (15" & 20")
- Desk top case
- Loopthrough

Model	CEM-09-II	CEM12-II	CEM-15A	CEM-20A
CRT	9" Diagonal 90°	12" Diagonal 90°	15" Diagonal 90°	20" Diagonal 90°
Video Signal	CCIR/EIA monochrome	CCIR/EIA monochrome	CCIR	CCIR
Resolution	1000 TVL			
Video In/Out	1 x in BNC 1 x out BNC, termination switched			
Audio In/Out	No	No	Yes	Yes
Power Requirement	100-240Vac	100-240Vac	230Vac	230Vac
Power Consumption	20W	30W	35W	36W
Operating Conditions	0 to 40°C			
External Dimensions in mm (W x H x D)	222x 238 x 250	304x 320x 310	350 x 350 x 360	472 x 450 x 360
Weight (approximate)	4.7Kg	8.0Kg	10.8Kg	18.2Kg
Audio Power	_	_	1W	0.5W
Adjustment	Brightness, Contrast,Vsize	Brightness, Contrast,Vsize	Brightness, Contrast,Vsize, Audio	Brightness, Contrast,Vsize, Audio

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DVR configuration guide for typical systems

For further information or advice on the exact configuration you require contact your CBC representative.

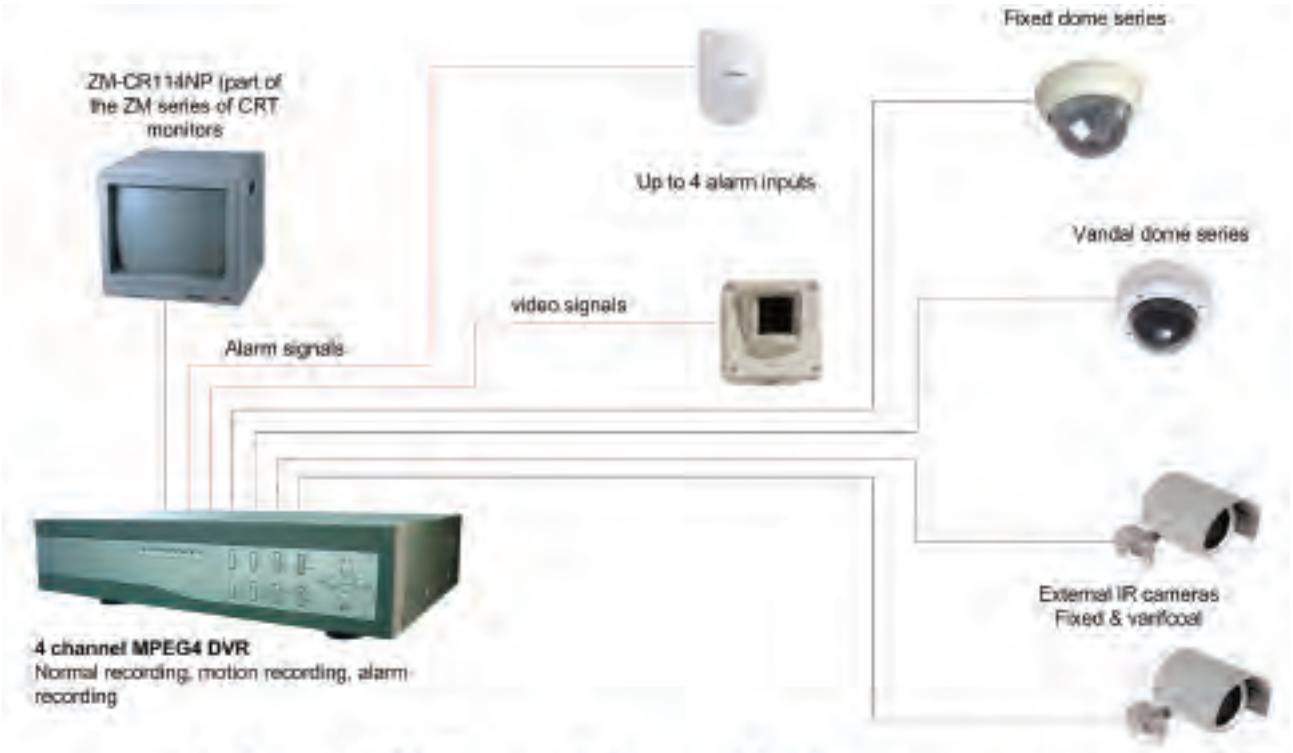
	Typical DVR configurations				
Requirement	DVR	Control kbd	Add on storage	Event back up	UPS*
9 camera inputs, 1 month recording at standard quality 1field per camera per second with CDRW event backup	ZR-DH921NP-320GB			ZR-DH-CDRW-USB	
As above with Remote control keyboard	ZR-DH921NP-320GB	C-DKBD-RS485 or C-DKBD-COAX		ZR-DH-CDRW-USB	
As above except recording at 3fields per second per camera in high quality and back up	ZR-DH921NP-320GB	C-DKBD-RS485 or C-DKBD-COAX	ZR-DH-4BAY-640GB	ZR-DH-CDRW-USB	P9125-2KVAUPS
16 cameras inputs recording for 1 month at 1fps per camera Q5 quality, USB stick back up and a UPS	ZR-DH1621NP-640GB		ZR-DH-MS-USB	P9125-1KVA	
As above with remote keyboard for dome and DVR control event back up with USB memory stick or CDRW	ZR-DH1621NP-640GB	C-DKBD-RS485 or C-DKBD-COAX		ZR-DH-MS-USB ZR-DH-CDRW-FW	P9125-1KVA
As above except recording 28 days, 3 fps per camera, highest quality.	ZR-DH1621NP-1TB	C-DKBD-RS485 or C-DKBD-COAX	ZR-DH-4BAY-1TB	ZR-DH-MS-USB ZR-DH-CDRW-FW	P9125-2KVA
32 cameras, recording for 1 month each at 1fps per camera, at highest quality, additional; alarms 10% of the time at 3fps per camera, remote keyboard & CDRW event back up	2 x ZR-DH1621NP-1TB	C-DKBD-RS485 or C-DKBD-COAX & ZP-TX1500/S		ZR-DH-CDRW-USB	P9125-3KVA

*UPS is providing backup power for DVR and other directly attached accessories, typical run time more than 40 minutes

Monitor bracket and viewing distance guidance

Monitor	Dimensions (w x h x d)	Wall bracket	Ceiling bracket	Optimum viewing	Comments
Mono monitors					
CEM-9-II	222 x 238 x 250			33 – 51 cm	
CEM-12-II	304 x 320 x 310	MISW 12/14	MISC 12/14	53 – 91 cm	
CEM-15A	350 x 350 x 360	MISW 12/14	MISC 12/14	91- 127 cm	
CEM-20A	472 x 450 x 360	MIDW 14/21	MIDW 14/21	127 – 193 cm	
Colour monitors					
ZM-CR110NP	222 x 322 x 232			33 – 51 cm	
ZM-CR114NP	350 x 387 x 330	MISW 12/14	MISC 12/14	91- 127 cm	
ZM-CRH115NP	363 x 379 x 353	MISW 12/14	MISC 12/14	91- 127 cm	
ZM-CR121NP	490 x 475 x 450	MIDW 14/21	MIDW 14/21	127 – 193 cm	
LCD					
ZM-L215VC	353 x 338 x 170	ZMA-WB3 or ZMA-WB2		91- 127 cm	Standard VESA mounting
ZM-L217VC	375 x 369 x 170	ZMA-WB3 or ZMA-WB2		91- 127 cm	Standard VESA mounting
ZM-L220C	505 x 475 x 182	ZMA-WB3 or ZMA-WB2		127 – 193 cm	Standard VESA mounting

SIMPLE STAND ALONE

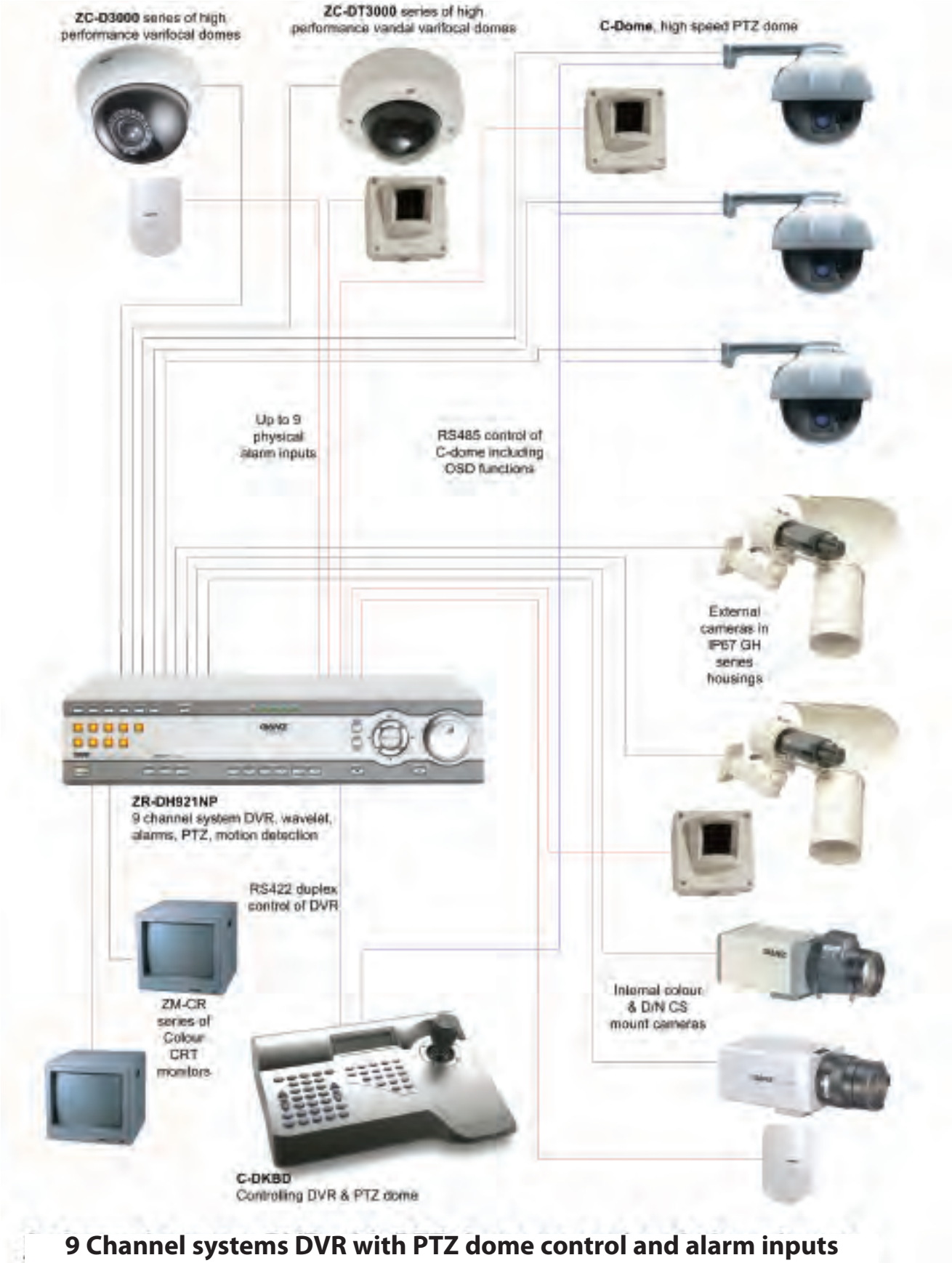

Fixed dome series
ZM-CR114NP (part of the ZM series of CRT monitors
Up to 4 alarm inputs
Vandal dome series
video signals
Alarm signals
External IR cameras Fixed & varifocal
4 channel MPEG4 DVR
Normal recording, motion recording, alarm recording

4 Channel DVR Standalone with alarms

Fixed internal dome series
ZM-CR114NP (part of the ZM series of CRT monitors
Vandal dome series
video signals
External IR cameras Fixed & varifocal
Alarm signals
8 channel MPEG4 DVR
Normal recording, motion recording, alarm recording

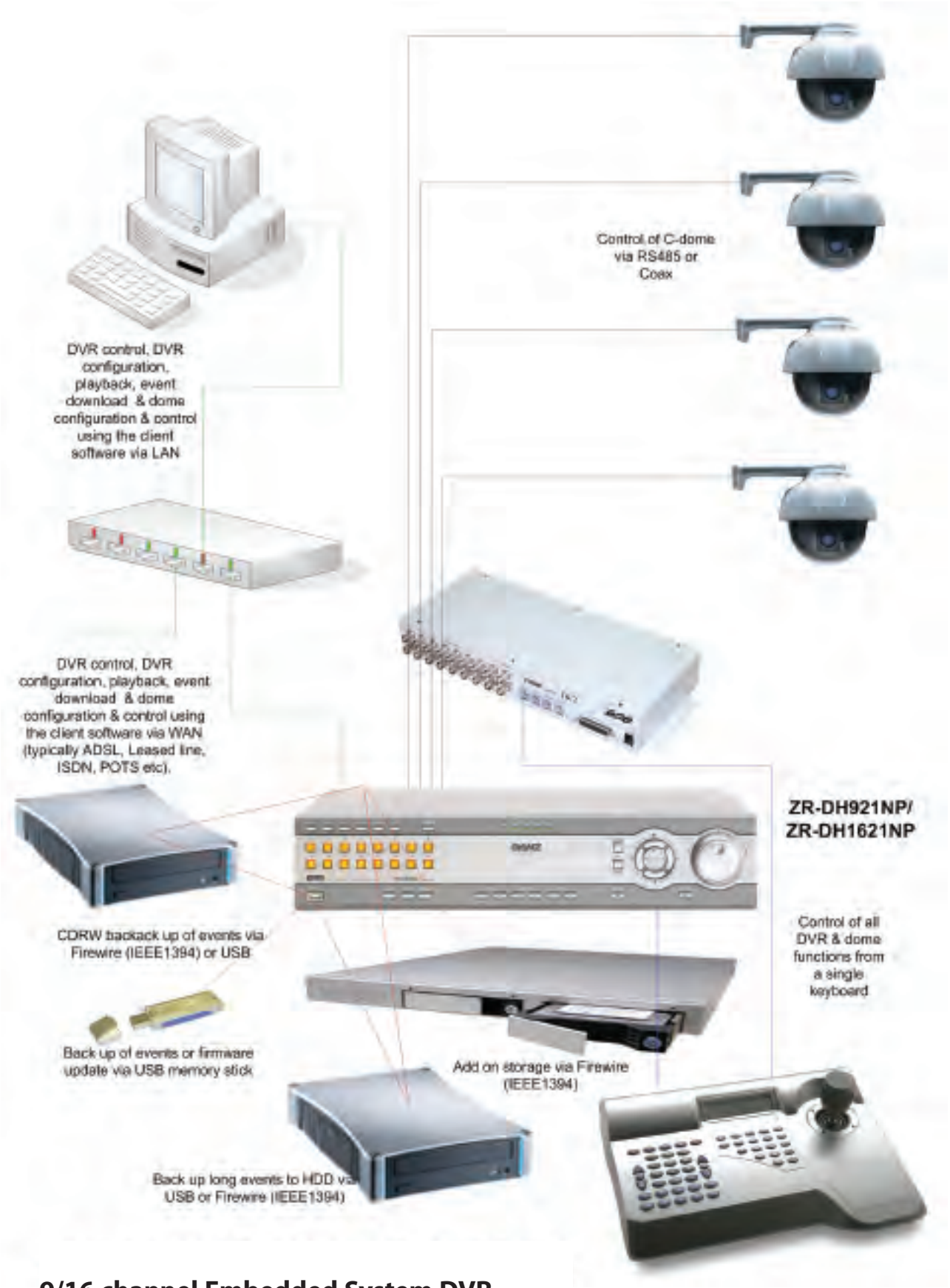
8 Channel DVR Standalone with alarms

MID-SIZE CONTROL SYSTEM


ZC-D3000 series of high performance varifocal domes
ZC-DT3000 series of high performance vandal varifocal domes
C-Dome, high speed PTZ dome
Up to 9 physical alarm inputs
RS485 control of C-dome including OSD functions
External cameras in IP67 GH series housings
ZR-DH921NP
9 channel system DVR, wavelet, alarms, PTZ, motion detection
RS422 duplex control of DVR
ZM-CR series of Colour CRT monitors
Internal colour & D/N CS mount cameras
C-DKBD
Controlling DVR & PTZ dome

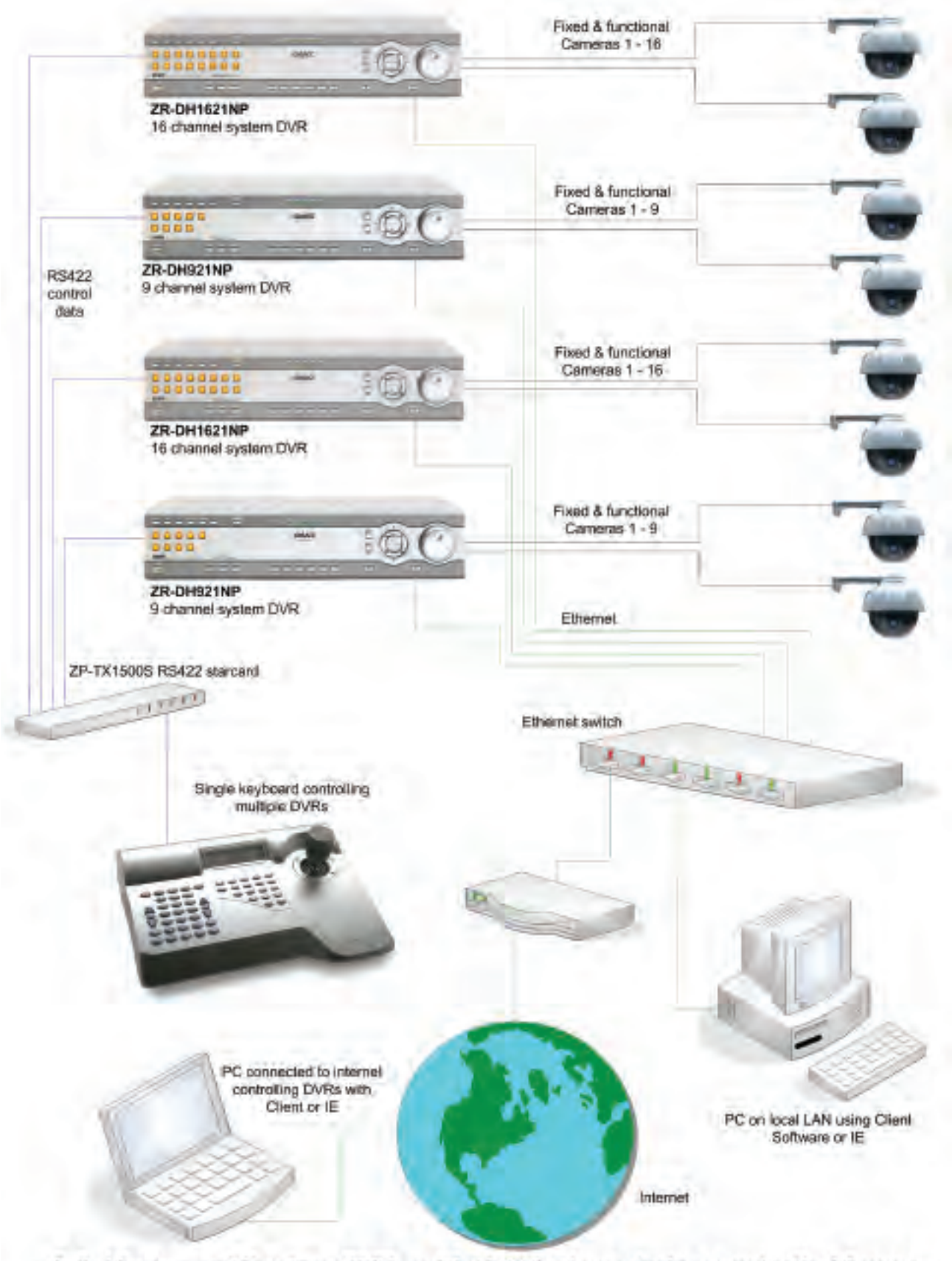
9 Channel systems DVR with PTZ dome control and alarm inputs

CONTROL SYSTEM WITH ADDED STORAGE & NETWORK CAPABILITY


Control of C-dome via RS485 or Coax
DVR control, DVR configuration, playback, event download & dome configuration & control using the client software via LAN
DVR control, DVR configuration, playback, event download & dome configuration & control using the client software via WAN (typically ADSL, Leased line, ISDN, POTS etc).
ZR-DH921NP/ ZR-DH1621NP
CDRW backack up of events via Firewire (IEEE1394) or USB
Control of all DVR & dome functions from a single keyboard
Back up of events or firmware update via USB memory stick
Add on storage via Firewire (IEEE1394)
Back up long events to HDD via USB or Firewire (IEEE1394)

9/16 channel Embedded System DVR

MULTIPLE DVR SYSTEM WITH LAN/WAN CONTROL


Fixed & functional Cameras 1 - 16
ZR-DH1621NP
16 channel system DVR
Fixed & functional Cameras 1 - 9
ZR-DH921NP
9 channel system DVR
RS422 control data
Fixed & functional Cameras 1 - 16
ZR-DH1621NP
16 channel system DVR
Fixed & functional Cameras 1 - 9
ZR-DH921NP
9 channel system DVR
Ethernet
ZP-TX1500S RS422 starcard
Ethernet switch
Single keyboard controlling multiple DVRs
PC connected to internet controlling DVRs with Client or IE
Internet
PC on local LAN using Client Software or IE

9/16 channel System DVRs with PTZ C-dome being controlled from a single keyboard and LAN/WAN with Client software or Internet Explorer

92-93 IP Camera & Server

94-95 IP Software

96 System & Configuration

97 Introduction to IP

98-99 High Definition IP

100-101 VSoIP Course

IP Transmission

at a glance

IP Camera

Video Server

IP Management Software

System Diagrams

Introduction to IP

ZN SERIES

High Resolution Colour & Colour/Mono (D/N) Network Cameras

The ZN series network cameras incorporate 1/3" format Super HAD CCD technology for superb colour picture quality (ZN-YH213P) and high sensitivity with true Day/Night performance (ZN-NH257P).

Utilising MPEG-4 compression, the ZN series cameras offer a smooth 25fps refresh rate under limited bandwidth. The camera also features an analogue output for local monitoring. In addition, this new network camera range includes many value-added features such as motion detection, audio detection, e-mail notification and RS232C/485 interface.

Ordering Information

ZN-YH213P 1/3", Col Network camera, 480 TVL, 0.6 lux
ZN-NH257P 1/3", Col/Mono Network camera, 480 TVL, 0.6 lux(Col), 0.04 lux(Mono)

Perfect Partners

IR Lens
Page 6

Software
Page 94

MODEL	ZN-YH213P	ZN-NH257P
TV System	Pal	
Video Output	1.0V (p-p) / 75	
Resolution (horizontal)	480 TVL	
Minimum Illumination	Colour 0.6 lux (F1.2/30IRE)	Colour 0.6 lux (F1.2/30IRE) Mono 0.04 lux (F1.2/30IRE)
S/N Ratio	More than 50dB (AGC OFF)	
Gamma Charcteristics	0.45	
Image Sensor	1/3" IT CCD	
Effective Elements	768(H) x 494(V)	
Sync. System	INT. / Line-lock	
Iris Control	DC iris, AES: Linear shutter (1/60 to 1/20000), VIDEO iris: Vcc = DC 12 V, 50 mA max. Sig.= 0.7 Vp-p High impedance	
Lens Mount	CS mount	
Power Supply	12V DC	
Power Consumption	10 W or less	
Operating / Storage Temperature	0 to +50 Degrees C, -20 to +60 Degrees C	
External Dimensions	60 (W) x 65 (H) x 126 (D) mm	
Weight (approximate)	400g	
Operating Temperature & Humidity	-10 to +50 Degrees C, 85% RH Max. (No Condensation)	
Storage Temperature & Humidity	-20 to +60 Degrees C, 95% RH Max. (No Condensation)	
Input / Output Terminal	Video output: BNC, Power input: 2-pin screwless terminal blocks, Auto-iris output: 4-pin connector (D4-151N-100/equivalent), B/W model Fix terminal: 2-pin screwless terminal blocks	
Switches	Iris Control: DC/AES/VIDEO, BLC: ON/OFF Flicker Less: FL/FIX	
Adjustments	DC iris level adjustment	
Image Compression	MPEG-4 Video Resolution: 640 (H) x 240 (V) Bit rate: 64Kbps ~ 1Mbps, Frame rate: MAX 25fps	
Audio Compression	ITU-T G.726, Bidirectional,	
Audio Signal	In: Microphone level in (mono), Out: Line out (mono)	
Serial Data	RS232C/RS485 each 1ch	
Digital In/Out	TTL level transmission in 2ch/out each 3ch	
Network Interface	10/100 Base-T Ethernet	
Protocols	TCP-IP/DHCP/SMTP/ARP/PING LED	

KEY FEATURES:

- 1/3" IT CCD
- High-quality image with low bandwidth using MPEG-4 compression
- Bi-directional audio transmission
- Day/Night performance with IR cut filter retraction (ZN-NH257P)
- Analogue video output for local viewing
- Supports up to 4096 cameras by SMS (System Monitoring Station)
- TCP-IP/DHCP/SMTP/ARP/PING Protocols

ZV-S201P

MPEG4 Network Video Server

The ZV-S201P MPEG-4 Network video server allows a standard CCTV camera to be connected to the Ganz IP video monitoring and recording system.

Utilising MPEG-4 compression allows the video server to provide full 25 fps real time images over a network. In addition to this, RS232/485 port allows a data connection to the video server providing a control path to allow integration of fully functional PTZ cameras.

Ordering codes:
ZV-S201P MPEG-4 Network Video Server

Perfect Partners

C-Dome
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Software
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Pre-built kit
Page 38

MODEL	ZV-S201P
Image Compression	MPEG-4, Video Resolution: 640 (H) x 240 (V) Bit rate: 64Kbps ~ 1Mbps, Frame rate: MAX 30fps
Audio Compression	G.726, Bidirectional
Audio Signal	In: Microphone level in, Out: Line out (mono)
Serial Data	RS232C/RS485 each 1ch
Digital In/Out	TTL level transmission in 2ch/out each 3ch
Network Interface	10/100 Base-T Ethernet
Protocols	TCP-IP/DHCP/SMTP/ARP/PING
LED	POWER (Red)/LED 1 (Yellow)/LED 2 (Green)

KEY FEATURES:

- Real-time MPEG-4 video encoding
- 25 frames per second
- 10Kbps-1Mbps bandwidth
- 100Mbps RJ45 LAN interface
- NTSC / PAL input
- RS232 / RS485
- Audio (optional)
- Broadcast upto 10 clients
- PC Viewer
- On-board HTTP server

ZNS-MRS SERIES

Management Software

The ZNS-MRS series of management software for the GANZ series of IP cameras allow up to 32 cameras to be viewed, recorded and managed from a single PC/server. Live images are displayed in two simple pages of 4, 9 or 16 way cameras, this allows the operator to simply and quickly move to the desired camera. Any camera can be viewed full screen.

The software also facilitates control of PTZ cameras from standard pan and tilts through to fully functional PTZ domes. This can operate on a wide range of protocols that have been preprogrammed.

Recording is done by storing the MPEG4 streams from the cameras programmed. The recording can be initiated manually, via a schedule, alarm input, video motion detection, video loss or from the audio level.

Playback can also be done from the same PC, if multiple recording PCs are being used then anyone of them can playback images from the other. Play back can be initiated from a straight time and date selection or a search for an alarm event. Additionally the powerful feature to retrospectively search for movement in the video of any camera, allows the system event to find an event such as an item being stolen.

ZNS-MRS8	Management Software, 8 cameras
ZNS-MRS18	Management Software, 16 cameras
ZNS-MRS32	Management Software, 32 cameras

Perfect Partners

IP Camera
Page 92

Video Server
Page 93

MODEL	ZNS-MRS8	ZNS-MRS18	ZNS-MRS32
Channels	8	16	32
Display	1,4	1,4,9	1,4,9,16
Groups of cameras	2	2	2
Max fields per second	200fps	450fps	800fps
Software function	record, playback, alarm management, event archive		
Live Vieiwing	Yes		
Covert	Yes		
Recording	Yes, manual, schedule, Alarm, motion, continuous		
Video stream	MPEG4		
Audio	Yes (bidirectional live & recorded)		
Alarm management	Yes, programmable response		
Playback	Yes, from this server or remote server		
Event back up	Yes, to most medias		
Camera configuration	Yes		
PTZ control	Yes (wide range of protocols)		
Alarm source	alarm, video motion, audio level, video loss		
Password	Yes, multilevel		
Search	time date/event/post motion search		
Auto delete	Yes, programmable		

KEY FEATURES:

- Single PC/server for all functions
- Telemetry control of PTZ
- Wide range of inbuilt protocols
- Post event motion search
- Automatic DST/GMT adjustment
- Expandable external storage
- Multi-password protection
- Events triggerable via motion, alarm input, video loss or audio level
- Bidirectional audio (with both recorded)
- Record & display up to 800fps
- Auto delete of recorded audio and video

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ZNS-MRS SERIES

Management Software

The ZNS-MS4096 software allows control of a large IP cameras system when integrating with the Ganz IP camera series, GANZ video server and the Ganz ZNS-MRS series of viewing & recording servers

The software provides seamless control of the distributed IP cameras and video servers, allowing control of the camera setup and any PTZ functionality the individual IP cameras or video servers may have connected.

Additionally the management software incorporates the ability to view and control the PC/Servers running the ZNS-MRS series of software. Providing full control of the recording set up and management, playback, alarm management and event archive or backup.

ZNS-MS4096 Management Software, 4096 cameras

Perfect Partners

IP Camera
Page 92

Video Server
Page 93

MODEL	ZNS-MS4096
Max cameras	4096
Display	1,4,9,16
Groups of cameras	256
Cameras per group	16
Max fields per second	400fps
Software functions	playback, alarm management, event archive
Live viewing	Yes
Recording configuration	Yes, manual, schedule, Alarm, motion, continuous (ZNS-MRS)
Video stream	MPEG4
Audio	Yes (bidirectional)
Alarm management	Yes, programmable response
Playback	Yes, of the ZNS-MRS recording servers
Event back up	Yes, to most medias
Camera configuration	Yes
PTZ control	Yes (wide range of protocols)
Alarm source	alarm, video motion, audio level, video loss
Password	Yes, multilevel
Search	time date/event/post motion search

KEY FEATURES:

- Control of large distributed video over IP sytem
- Telemetry control of PTZ
- Wide range of inbuilt protocols
- Post event motion search
- Automatic DST/GMT adjustment
- Up to 16 cameras displayed at any time
- Display up to 800fps
- Multi-password protection
- Events triggerable via motion, alarm input, video loss or audio level
- Bidirectional audio)
- Configuration of viewing and recording servers (ZNS-MRS)
- Playback of recording servers (ZNS-MRS)

IP TRANSMISSION

Single camera hardware to software solution

INTRODUCTION TO IP

Glossary

10BaseT - Ethernet specification for unshielded twisted pair cable (category5) transmits signals at 10 Mbps (megabits per second) with a distance limit of 100 meters per segment.

100BaseT - Ethernet specification for unshielded twisted pair cabling that is used to transmit data at 100 Mbps (megabits per second) with a distance limit of 100 meters per segment.

1000BaseTX -Ethernet specification for unshielded twisted pair cabling that is used to transmit data at 1 Gbps (gigabits per second) with a distance limitation of 220 meters per segment.

Asynchronous Transfer Mode (ATM) - A network protocol that transmits data at a speed of 155 Mbps and higher. It is most often used to interconnect two or more local area networks.

Backbone - A cable to which multiple nodes or workstations are attached.

Bit - Binary digit in the binary numbering system. Its value can be 0 or 1. In an 8-bit character scheme, it takes 8 bits to make a byte (character) of data.

Bridge - Devices that connect and pass packets between two network segments that use the same communications protocol.

Client/Server - A networking system in which one or more file servers (Server) provide services; such as network management, application and centralised data storage for workstations (Clients).

CSMA/CA - Carrier Sense Multiple Access Collision Avoidance is a network access method in which each device signals its intent to transmit before it actually does so. This prevents other devices from sending information, thus preventing collisions from occurring between signals from two or more devices. This is the access method used by LocalTalk.

CSMA/CD - Carrier Sense Multiple Access Collision Detection is a network access method in which devices that are ready to transmit data first check the channel for a carrier. If no carrier is sensed, a device can transmit. If two devices transmit at once, a collision occurs and each computer backs off and waits a random amount of time before attempting to retransmit. This is the access method used by Ethernet.

End User - Refers to the human executing applications on the workstation.

Ethernet - A network protocol invented by Xerox Corporation and developed jointly by Xerox, Intel and Digital Equipment Corporation. Ethernet networks use CSMA/CD and run over a variety of cable types at 10 Mbps (megabits per second).

Fast Ethernet - A new Ethernet standard that supports 100 Mbps using category 5 twisted pair or fiber optic cable.

Fiber Distributed Data Interface (FDDI) - A network protocol that is used primarily to interconnect two or more local area networks, often over large distances.

File Server - A computer connected to the network that contains primary files/applications and shares them as requested with the other computers on the network. If the file server is dedicated for that purpose only, it is connected to a client/server network. An example of a client/server network is Novell Netware. All the computers connected to a peer-to-peer network are capable of being the file server. Two examples of peer-to-peer networks are LANtastic and Windows for Workgroups.

Gigabit Ethernet - An Ethernet protocol that raises the transmission rates to 1 Gbps (gigabits per second). It is primarily used for a high speed backbone of a network.

Gigabyte (Gb) - One billion bytes of information. One thousand megabytes.

Hub - A hardware device that contains multiple independent but connected modules of network and internetwork equipment. Hubs can be active (where they repeat signals sent through them) or passive (where they do not repeat but merely split signals sent through them).

Intranet - Network internal to an organization that uses Internet protocols.

Internet - A global network of networks used to exchange information using the TCP/IP protocol. It allows for electronic mail and the accessing ad retrieval of information from remote sources.

LAN (Local Area Network) - A network connecting computers in a relatively small area such as a building.

IP Camera A CCTV Camera that can be connected directly into a TCP/IP network

MAN (Metropolitan Area Network) - A network connecting computers over a large geographical area, such as a city or school district.

Modem (Modulator/Demodulator) - Devices that convert digital and analog signals. Modems allow computer data (digital) to be transmitted over voice-grade telephone lines (analog).

Multiplexer - A device that allows multiple logical signals to be transmitted simultaneously across a single physical channel.

Network Interface Card (NIC) - A board that provides network communication capabilities to and from a computer.

Network Operating System (NOS) - Operating system designed to pass information and communicate between more than one computer. Examples include AppleShare, Novell NetWare, and Windows NT Server.

Node - End point of a network connection. Nodes include any device attached to a network such as IP Cameras, Video Servers or workstations.

Node Devices - Any computer or peripheral that is connected to the network.

Physical Topology - The physical layout of the network; how the cables are arranged; and how the computers are connected.

Point-to-Point - A direct link between two objects in a network.

Ports - A connection point for a cable.

Protocol -A formal description of a set of rules and conventions that govern how devices on a network exchange information.

RAID (Redundant Array of Inexpensive Disks) - A configuration of multiple disks designed to preserve data after a disk casualty.

RAM (Random Access Memory) - The working memory of a computer where data and programs are temporarily stored. RAM only holds information when the computer is on.

RJ-45 - Standard connectors used for unshielded twisted-pair cable.

Router -A device that routes information between interconnected networks. It can select the best path to route a message, as well as translate information from one network to another. It is similar to a super intelligent bridge.

SCSI (Small Computer Serial Interface) - An interface controller that allows several peripherals to be connected to the same port on a computer.

Segment - Refers to a section of cable on a network. In Ethernet networks, two types of segments are defined. A populated or trunk segment is a network cable that has one or more nodes attached to it. A link segment is a cable that connects a computer to an interconnecting device, such as a repeater or concentrator, or connects a interconnecting device to another interconnecting device.

Speed of Data Transfer - The rate at which information travels through a network, usually measured in megabits per second.

Star Topology - LAN topology in which each node on a network is connected directly to a central network hub or concentrator.

Terminator - A device that provides electrical resistance at the end of a transmission line. Its function is to absorb signals on the line, thereby keeping them from bouncing back and being received again by the network.

Topology - There are two types of topology: physical and logical. The physical topology of a network refers to the configuration of cables, computers, and other peripherals. Logical topology is the method used to pass the information between workstations. Issues involving logical topologies are discussed on the Protocol chapter

Transceiver (Transmitter/Receiver) - A Device that receives and sends signals over a medium. In networks, it is generally used to allow for the connection between two different types of cable connectors, such as AUI and RJ-45.

Twisted Pair - Network cabling that consists of four pairs of wires that are manufactured with the wires twisted to certain specifications. Available in shielded and unshielded versions.

USB (Universal Serial Bus) Port - A hardware interface for low-speed peripherals such as the keyboard, mouse, joystick, scanner, printer, and telephony devices.

Video Server A device that can convert a standard analogue signal from a traditional CCTV camera to and IP signal that can be connect to your TCP/IP network

WAN (Wide Area Network) - A network connecting computers within very large areas, such as states, countries, and the world.

Workgroup - A collection of workstations and servers on a LAN that are designated to communicate and exchange data with one another.

Workstation - A computer connected to a network at which users interact with software stored on the network.

CVQ 2100

High Definition IP Camera Solution

High Definition (HD) network based video surveillance and event management solutions set a new benchmark for video quality and operational utility, leading to enhanced security and operational flexibility. Based on progressive scan 1280x720 pixel High Definition image sensors and unique MultiStream™ and SCAN™ technologies, the HD solutions operate with minimal impact on corporate IT network bandwidth.

In addition to unmatched high definition image quality, the HD solutions offer a high performance database platform to exploit advanced image analytics algorithms, Crystal HD utilizes the Surveillance Camera Area Network (SCAN™) architecture. By distributing all cameras, system intelligence and database indexed recording modules at the edge of the network, SCAN dramatically lowers bandwidth demands on the IT network, and eliminates single points of system failure.

Combined with the unique MultiStream™ video encoding, SCAN enables Dynamic Bandwidth Management™, which means video data flows over the network only when a camera is being actively monitored, and at an agreed bandwidth. This permits almost unlimited scalability for multi-site enterprise and global deployments using existing LAN and WAN infrastructures.

CVQ 2100 1/4" High Dynamic range Network Camera
DMM-2100 Single Channel Network Server with either 160GB or 250GB hard drive

Perfect Partners

Megapixel Lens
Page 12

PC

MODEL	CVQ2100
Video	RJ45 Ethernet
	Up to 6 concurrent Video outputs HighDefinition1280x720P 3FPS 4CIF: 720x416 25FPS CIF: 352x208 25FPS, 12.5FPS and 4 FPS QCIF: 176x96 12.5FPS
Image Sensor	High Dynamic range 1/2"
Signal to Noise	>68dB
Voltage	24Vac or 24Vac/POE max 200mtr
Lens Mount	C/CS (moveable IR filter)
Management	Remote setup and control via software
Dimensions	187x77x85 (LxHxD)mm
Video Server	DMM-2100: D2200
Enclosures	Rack mount (6 DMM); Wall Mount (4 DMM); and Stand-alone (1 DMM)
DMM Storage Options	160GB or 250GB per unit

KEY FEATURES:

- HD, 4CIF, CIF and QCIF wide dynamic range video - live and recorded from every camera on demand
- No load on the network unless you are playing video
- Keeps recording even when network fails
- Multi-Stream™ video with adaptive monitoring sends the right size stream for your viewing window, minimizing bandwidth consumption
- Powerful, fine-grained management from any network-connected location

INTRODUCTION TO IP

High Definition IP Camera Solution Overview

VSoIP

Video Surveillance Over Internet Protocol

VSoIP
VIDEO SURVEILLANCE
OVER INTERNET PROTOCOL

A course designed by CBC for Analogue and Digital CCTV users to move into the IP world with ease and vice versa.
AIM of the Course:

To understand how to Integrate analogue CCTV systems with IP Networks.

By the end of the course the student will be able to deploy a "Stand-Alone" IP based video surveillance system with a good foundation knowledge of the emerging IP based technologies available. The student will also get a broad understanding of the "Integration of CCTV Surveillance with IP Networks".

Course details and duration:

Pre requisites
Have good understanding of computers

Course Duration
3-days

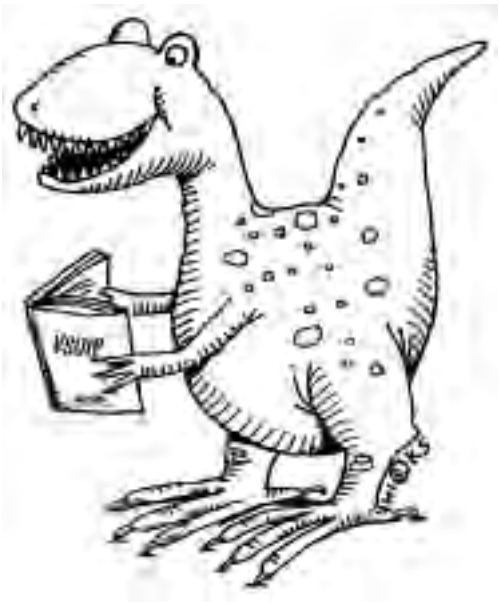
Examination Details
a) Written / Multiple Choice
b) Practical

Course content:

- IP Networking
- TCP/ IP
- OSI Model
- Network Cabling Topologies
- Software interaction with hardware
- LAN / WAN technologies
- Ethernet
- Video Storage in computer Systems
- ISP's & communication technologies
- Differences between manufacturers products & technologies
- Successfully implement a mini video solution using a mini LAN.
- CCTV Optronics, Cameras, CCTV Control equipment, Multiplexers DVR's (digital Video Recorders)
- Web Servers
- Implement a stand-alone IP Video Network

VSoIP

Video Surveillance Over Internet Protocol



Three day course

The three day course helps the CCTV installer to learn background information on traditional surveillance technologies and historical overview on the evolution of analogue based surveillance technology.

The CCTV Installer will gain an understanding of IP technologies and how to integrate IP with modern IP based surveillance equipment.

- TCP/IP general overview
- Understand Ethernet technologies, IEEE Standards 802.3
- Cabling Typology
- Understanding Video Storage in Computer Systems
- Understand Communication Technologies such as ISDN, Broadband, Lease Line etc.
- Bandwidth considerations

The last session of the course is a Practical session – How one successfully implements Video Surveillance Solution using IP.

CERTIFICATION: VSoIP Certified Engineer

Bickenhall College of Computing

104 Road Star Cameras

105 Number Plate Capture Info

106 Mobile DVR

107 Mobile Applications

Mobile Applications

at a glance

Cameras

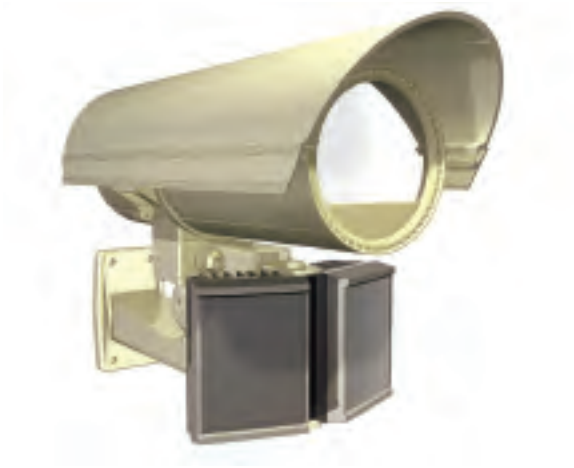
Number plate capture

DVR

Applications

ROADSTAR RST 10/20

Number Plate Capture Camera



The new ROADSTAR series is a compact, integrated number plate capture camera designed for high performance, long life and low maintenance. All ROADSTAR products capture images of the number plate on a 24 hour basis - day and night.

ROADSTAR is available in 10m or 20m versions and is designed for quick and easy installation in an environmental housing. Other distance models are available on request. Adaptive Illumination™ is supplied as standard.

ROADSTAR overcomes all problems associated with number plate capture – speed, reflectivity, sunlight, car headlights and depth of field– regardless of ambient lighting conditions.

The camera comes with a 3 year warranty and industry leading long life and low running costs. It can be used directly with DVR's on a stand alone basis or used in conjunction with ANPR software systems. A PSU with control features is included.

NOTE: During night-time operation ROADSTAR will only provide images of number plate – there will be no further video information. During the day, ROADSTAR may provide some additional background scene information.

RST10 High Resolution Number Plate Capture Camera, 10 m
RST20 High Resolution Number Plate Capture Camera, 20 m

Perfect Partners

MPEG 4 DVR
Page 74

16 Channel DVR
Page 72

MODEL	RST10	RST20
Capture Distance	up to 10m	up to 20m
Resolution	High resolution	High resolution
Lens	Fixed	Fixed
IR Angle	AI 20-60 degrees	AI 20-60 degrees
Wavelength	850nm	850nm
Environmental Rating	IP66	IP66
Colour	light grey	light grey
Bracketry (included)	wall bracket	wall bracket
PSU	Included	Included
PSU Input Voltage	230V AC +/- 10%	230V AC +/- 10%
Power Consumption	150W (nominal)	150W (nominal)

KEY FEATURES:

- Dedicated 24 hour number plate capture camera
- Easy installation and set-up
- Adaptive Illumination™
- Up to 20 metre range
- Low maintenance
- 3 year warranty
- LED power control
- Cable managed bracket
- Other models available

INTEGRATED NUMBER PLATE CAPTURE GUIDE

Characteristics of Integrated number plate capture cameras (ANPR)

ROADSTAR cameras are manufactured and designed to see vehicle number plates 24 hours a day during all operational conditions. Number plate cameras must solve traditional problems such as car headlights, high reflectivity of the number plate, daylight peaks of light and moving targets. To achieve this, ROADSTAR cameras are set up with the sole goal of viewing the number plate, there is no guarantee that additional background scene information will be visible.

During night time operation a ROADSTAR camera will only provide images of the number plate, there will be no further video information. During the day ROADSTAR cameras may provide some additional background scene information.

Typical Applications for ROADSTAR cameras

- Garage Forecourts
- Private Housing Estate
- Airfields
- Car Parks
- Access Control
- Hotels
- Industrial Estate
- Sports Clubs
- Can be added to any existing CCTV system

DVR or Software

CBC's ROADSTAR cameras capture an image of the number plate 24 hours a day, during all operating and lighting conditions. The ROADSTAR camera can be connected directly to a DVR recording images of the number plate as you would record a normal CCTV image. Additionally, CBC's ROADSTAR camera can also be used with most leading brands of ANPR software. ANPR software uses optical character recognition to recognise the alpha-numeric characters on the number plate and records the information to a database. Please contact CBC if you wish to connect your ANPR camera to ANPR software.

TIP: The combination of Roadstar with Ganz DVR allows for confident capture, storage and retrieval of vehicle number plate images.

NB: Software requirements are significantly higher than general capture and storage to DVR's. For non software requirements see HOSDB guidelines below.

HOSDB Guidelines

To read vehicle licence plates the HOSDB advise that a saloon car must not occupy less than 50% of the image height to capture an adequate size image of the number plate. CBC's ANPR camera meets this requirement and all other targets laid out by the PSDB for number plate capture. The Computar ANPR camera provides a constant focus image and solves all the problems associated with number plate capture.

HOSDB's guideline for general purpose:
Saloon car to fill 50% image height

CBC's guideline for use with software:
Number plate to fill 20% of image width

All CBC number plate cameras meet software requirements and exceed HOSDB guidelines

DV-M8-20

8 Channel Mobile Digital Recorder

The DV-M8-20 Mobile DVR is compact, versatile, flexible and very powerful 8 Channel DVR. The DVR has been specifically designed for the mobile market (eg. Buses, Coaches etc) and has been engineered to cope with the shock and vibration problems commonly associated in this enviroment.

The Mobile DVR is easy to install and data can easily be retrieved using, USB Memory stick, LAN, WiLAN and GPRS. The collected data can simply be reviewed or stored using the client software supplied free of charge with every DVR.

This software allows fast image retrieval and search on one or multi cameras at the same time. Ideal for large fleet operators like bushes, coaches, etc.

DV-M8-20 8 Channel Mobile DVR, MPEG-4/MJPEG, 20GB

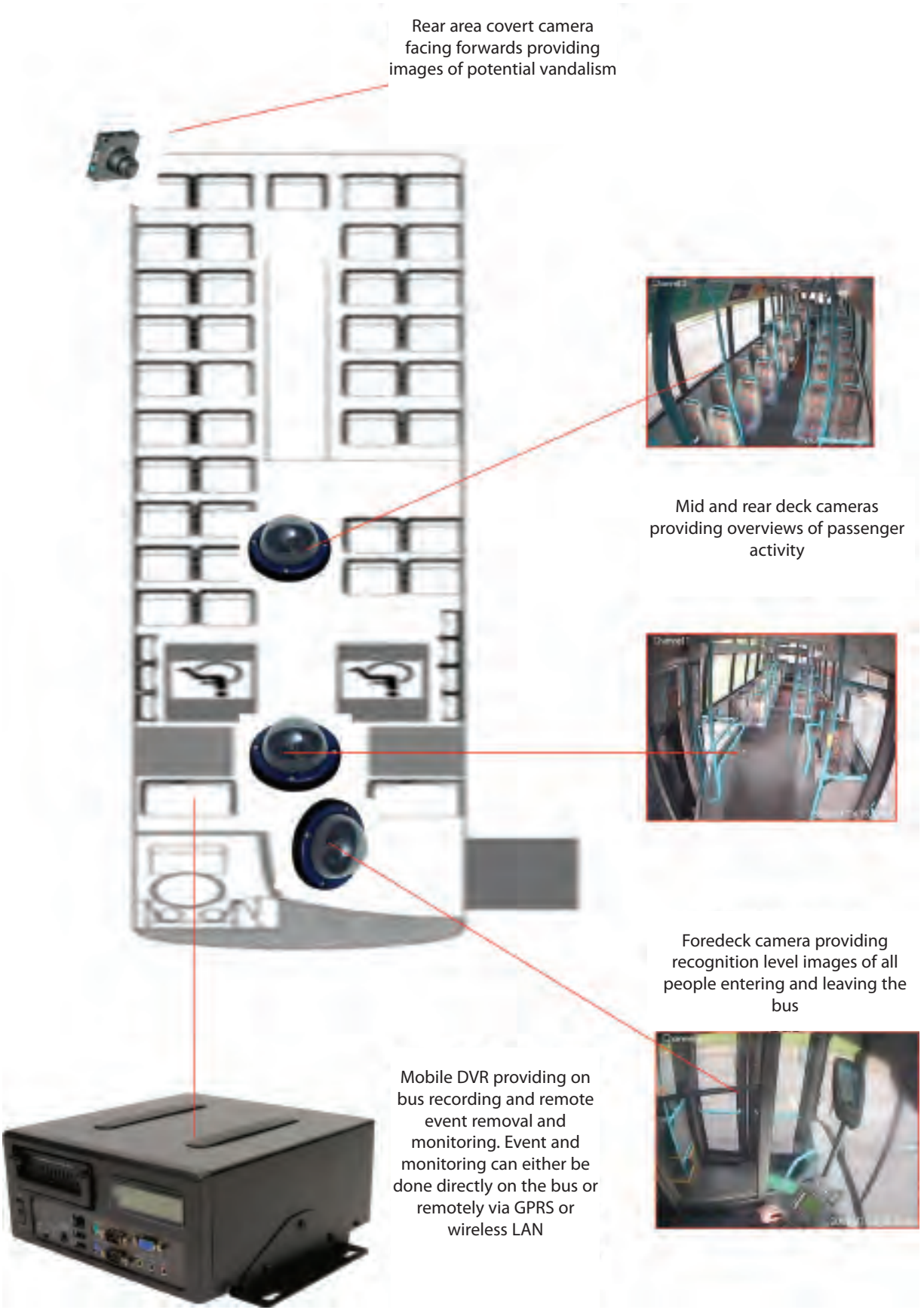
VCA E11 APPROVED

MODEL	DV-M8-20
Video Format	PAL / NTSC
Compression System	MPEG-4 or MJPEG
Operating System	Embedded Linux (not stored on HDD)
Video Input	8 channels
Video Output	2 composite video - BNC
Audio Input	2 input BNC, synchronized with video
Audio Output	Line out (22k line-level)
Recording Medium	Removable 2.5" HDD
Recording Mode	Continuous, Motion, Time Lapse, Event
Recording Speed	60 FPS
Record Resolution	PAL: 384 x 288; 768 x 576, NTSC: 320x 240, 640 x 480
Alarm Input	4 open, 4 closed
Alarm Output	1
Playback	Search by date, time camera
Video Loss Protection	Yes
User Interface	Menu driven
Titling	Alphanumeric characters
LAN	10 / 100 Mbps
USB Ports	2
Archiving	USB Memory stick, LAN WiLAN, GPRS
RS-232	2 RS-232 ports for GPS and GPRS interface
Infrared Receiver	1st on board, 2nd external with PS2 connector
Power Source	DC 12V 5A or 24V 2.5A
Power Consumption	Maximum 72W (includes 8 cameras)
Dimensions	220(W) x 97 (H) x 242(D)mm (without mounting bracket)
Weight (approximate)	3.0kg

KEY FEATURES:

- Compact design
- Designed to endure shocks and vibration
- Removable 2.5" HDD
- JPEG & MPEG-4 Recording
- Linux Industrial platform
- Easy retrieval of data using USB Memory stick, WiLAN, LAN or GPRS
- Search by date, time, camera
- Built in real time clock
- Audio recording capability
- Continuous, motion, time lapse, and event recording
- Free client software

MOBILE APPLICATIONS


Rear area covert camera facing forwards providing images of potential vandalism
Mid and rear deck cameras providing overviews of passenger activity
Foredeck camera providing recognition level images of all people entering and leaving the bus
Mobile DVR providing on bus recording and remote event removal and monitoring. Event and monitoring can either be done directly on the bus or remotely via GPRS or wireless LAN

110-111 **Video over Twisted Pair**

112-113 **Twisted Pair Systems**

114-115 **Service & Ancillaries**

Twisted Pair

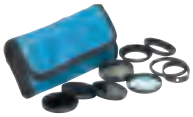
at a glance

Passive

Active

Connection/
System Guide

Lens Accessories



Filter Kits

Portable Service
Monitors

PSUs

C-TP SERIES

Twisted Pair Transmission; Passive Series

UTP (Unbalanced Twisted Pair) is a way of transmitting CCTV video signals on ordinary low cost CAT 5 type data cables using low cost Baluns (Balance Unbalance)

C-TP range of twisted pair transmission products are designed for CCTV signal transmission over unshielded twisted pair wire (CAT 5 network cable). This type of transmission is an alternative solution to the traditional coaxial and fiber based systems and gives the following benefits; Fast, easy installation, saving time and money, substantial savings on the cost of the cable itself, superb quality on long range transmission.

Most new commercial (and often residential) building developments install CAT 5 data "backbones" as standard for building management systems. These can be integrated TCP/IP or standard protocol networks. If there is spare unused cabling available, UTP CCTV systems can be installed without the need for additional costly extra wiring. Cat 5 cable is significantly cheaper than traditional RG59 and can fit far more conductors into a smaller space.

Perfect Partners

Video Ground Loop Isolator
Page 115

DVR Balun
Page 115

Ordering Codes

C-TP101VHL	Single channel Video Transciever with extra interference rejection
C-TP101VPK	Video & Power Transciever One for each end (For CBC Kits)
C-TP104V	4 Channel passive Video Transciever
C-TP116V	16 channel Video Transciever hub

MODEL	C-TP101VHL	C-TP101VPK	C-TP104V	C-TP116V
Video Input (BNC connector)	1	1	4	16 port (terminal block)
Video Input	1V p-p, 75 Ohms			-
Video Output Port	N/A			16 port, 1V p-p, 75 Ohms
RJ-45 Output	Terminal	Terminal	1	N/A
Transmission Distance (metres)	600m (B&W), 400m (Col)			
Recommended Cable	CAT5			
Dimensions in mm(WxHxD)	23x23x330	23x23x330	120x133x44	482x170x44

KEY FEATURES:

- Immunity to noise
- Long distances (Over 1km)
- Easy installation
- Multiple video signals in the same bundle
- RS-422/RS-485 in the same bundle
- 12VDC/24VAC in the same bundle
- Lower cabling costs and space saving
- Better interference immunity

C-TP SERIES

Twisted Pair Transmission; Active Series

UTP (Unbalanced Twisted Pair) is a way of transmitting CCTV video signals on ordinary low cost CAT 5 type data cables using low cost Baluns (Balance Unbalance)

C-TP range of twisted pair transmission products are designed for CCTV signal transmission over unshielded twisted pair wire (CAT 5 network cable). This type of transmission is an alternative solution to the traditional coaxial and fiber based systems and gives the following benefits;

Fast, easy installation, saving time and money, substantial savings on the cost of the cable itself, superb quality on long range transmission.

Most new commercial (and often residential) building developments install CAT 5 data "backbones" as standard for building management systems. These can be integrated TCP/IP or standard protocol networks. If there is spare unused cabling available, UTP CCTV systems can be installed without the need for additional costly extra wiring. Cat 5 cable is significantly cheaper than traditional RG59 and can fit far more conductors into a smaller space.

Perfect Partners

Video Ground Loop Isolator Page 115

DVR Balun Page 115

Ordering Codes

C-TPA101VT	Video Transciever - active TX
C-TPA101VR	Video Transciever- active RX
C-TPA104VR	Video Transciever - 4 channel active receiver
C-TP108VR	8 channel active receiver hub
C-TPA116VR	16 channel active receiver hub with distribution amp & surge protected

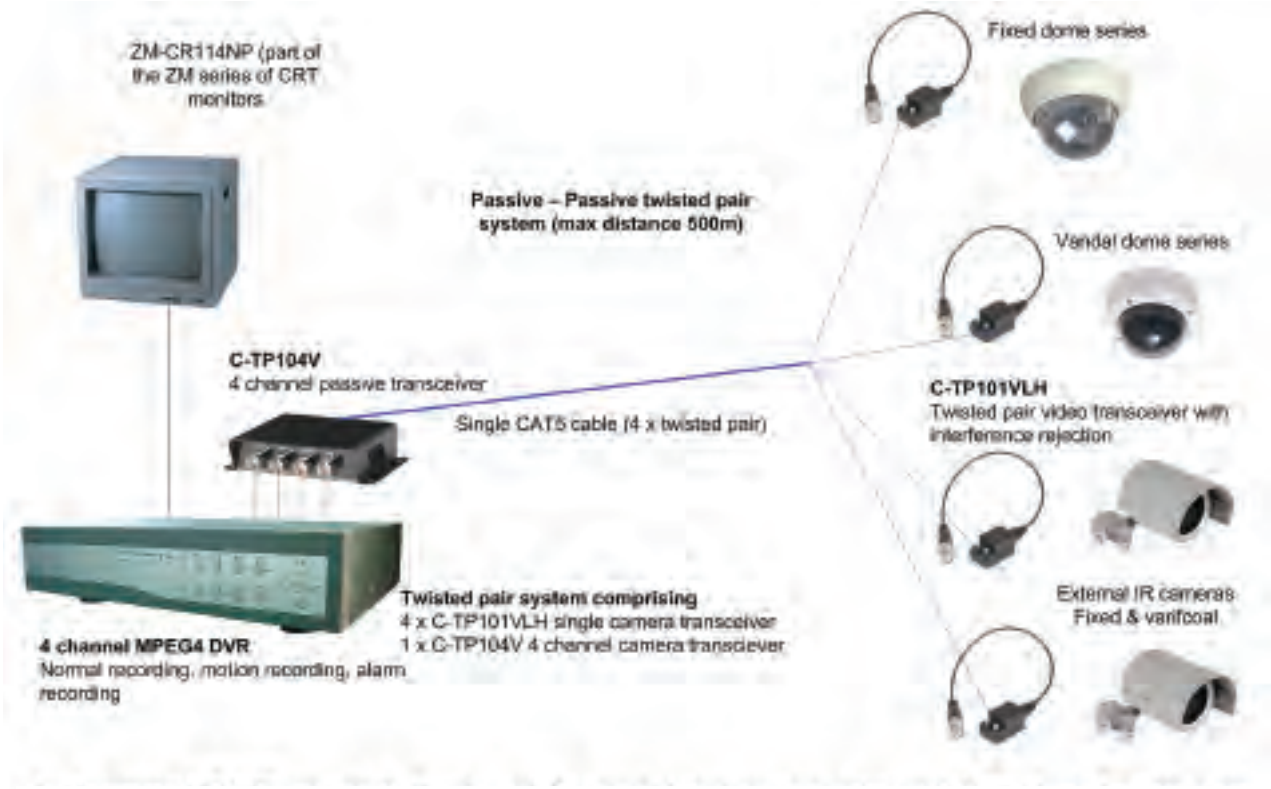
MODEL	C-TP101VT	C-TP101VR	C-TP104VR	C-TP108VR	C-TP116VR
Video Output	N/A	1V p-p, BNC	75 Ω BNC	8 port 1V p-p,BNC	16 port 75Ω BNC
Power Input / Consumption	DC 12V, 400mA				
Video Gain Adjusting	N/A	YES	YES	YES	YES
Power Adapter	YES				
Transmission Distance (metres)	600m (B&W), 400m (Col)				N/A
Recommended Cable	CAT5				
Dimensions in mm(WxHxD)	49.2x49.2x41.7		57.8x49.2x41.7	120x133x44	482x170x44

KEY FEATURES:

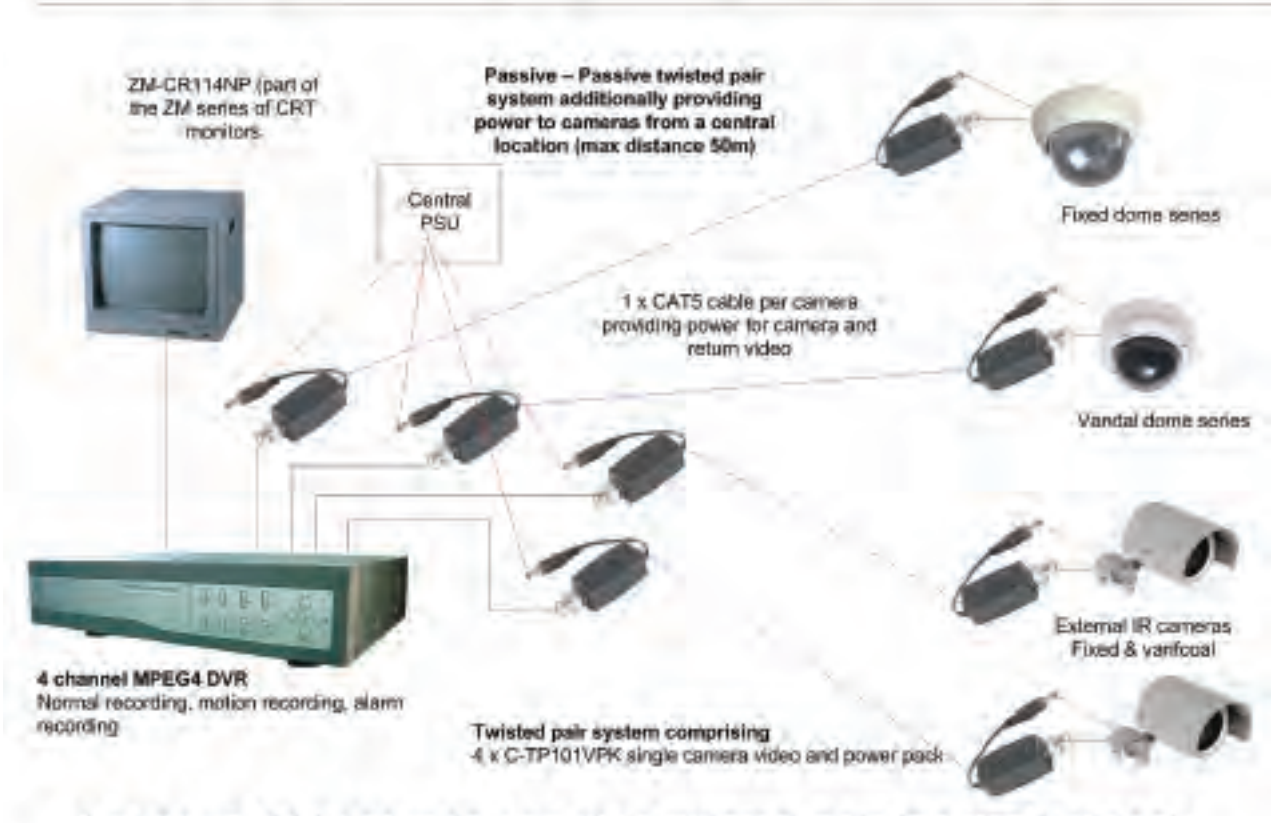
- Immunity to noise
- Long distances (Over 1km)
- Easy installation
- Multiple video signals in the same bundle
- RS-422/RS-485 in the same bundle
- 12VDC/24VAC in the same bundle
- Lower cabling costs and space saving
- Better interference immunity

TWISTED PAIR TRANSMISSION

System Diagrams


ZM-CR114NP (part of the ZM series of CRT monitors
Fixed dome series
Passive – Passive twisted pair system (max distance 500m)
Vandal dome series
C-TP104V
4 channel passive transceiver
Single CAT5 cable (4 x twisted pair)
C-TP101VLH
Twisted pair video transceiver with interference rejection
External IR cameras Fixed & varifocal
4 channel MPEG4 DVR
Normal recording, motion recording, alarm recording
Twisted pair system comprising
4 x C-TP101VLH single camera transceiver
1 x C-TP104V 4 channel camera transceiver

4 channel DVR standalone with passive to passive twisted pair system


ZM-CR114NP (part of the ZM series of CRT monitors
Passive – Passive twisted pair system additionally providing power to cameras from a central location (max distance 50m)
Central PSU
Fixed dome series
1 x CAT5 cable per camera providing power for camera and return video
Vandal dome series
External IR cameras Fixed & varifocal
4 channel MPEG4 DVR
Normal recording, motion recording, alarm recording
Twisted pair system comprising
4 x C-TP101VPK single camera video and power pack

4 channel DVR standalone with twisted pair system (power & video)

TWISTED PAIR TRANSMISSION

System Diagrams

ZC-D3000-TP series of high performance varifocal domes with twisted pair built-in
ZC-DT3000-TP series of high performance vandal varifocal domes with twisted pair built-in
C-Dome, high speed PTZ dome with optional twisted pair built in module
Max distance with built in passive transmitters to active receiver is 1000M
RS485 control of C-dome including OSD functions
Coax
Twisted pair
C-TPA101VT
Single channel active transmitter
C-TPA116VR
16 channel active receiver (max distance with passive TX is 1000M, active Tx is 1500M
Max distance with the active Tx to active Rx is 1500M
ZR-DH921NP
9 channel system DVR, wavelet, alarms, PTZ, motion detection
C-TP101VLH
Single channel passive transceivers
RS422 duplex control of DVR
External cameras in IP67 GH series housings with single channel active transmitter twisted pair
ZM-CR series of Colour CRT monitors
ZC-Y11PH5
Twisted pair built in camera
Max distance of passive Tx to Rx on the monitors is 500m
C-DKBD
Controlling DVR & PTZ dome

9 channel system DVR with PTZ dome control and video sent via CAT5 twisted pair

SYSTEM ACCESSORIES

LENS ACCESSORIES

VM 100	Extension Tube Kit
VM 300	View Finder
VM 400	C/CS Mount Converter
DL00	Dummy lens
EX1.5C	C-Mount 1.5x Extender
EX2C	C-Mount 2x Extender
EX1.5CS	CS-Mount 1.5x Extender
EX2CS	CS-Mount 2x Extender

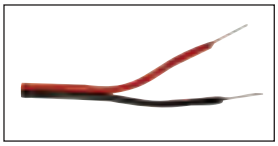
FILTER SET UP KIT

Indispensable tool for the optimum configuration of CCTV systems

FSK Filter Set Up Kit - includes Polarising, ND1, ND3, IR cut, IR pass

POWER SUPPLIES

CPSU-12-1.0A II	12VDC power supply 1.0 Amp
CPSU-12-0.5A II	12VDC power supply 0.5 Amp
CPSU-24-1.0A II	24VAC power supply 1.0 Amp
CVPSU-12	12VDC power supply 1.0 Amp



SERVICE EQUIPMENT

PSM 012P & PSM 025P

- 4" B&W (PSM 012P)/ 2.47" Colour (PSM 025P) Flat Screen
- 12 hour battery charge time
- High resolution display
- Sturdy carry case (PSM 012P)

PSM012	4" B&W Portable Service Monitor with Battery pack/Charger/Case
PSM012-BP	Spare Battery Pack for PSM012
PSM012-CH	Spare Battery Charger
PSM012-MC	Monitor and Leather case only
PSM012-M	Monitor only
PSM012-LC	Leather look case only
PSM 025P	2.47" Colour Portable Service Monitor with power supply, bag and belt

65(w) x 65(h) x 57(d) mm

82(w) x 130(h) x 46(d) mm

VD4.8P

- Programmable video distributor
- 4 inputs, 8 outputs
- Simple configuration
- Easy to install

VD4.8P	Video Distribution Amp

270(w) x 40(h) x 180(d) mm

VIDEO GROUND LOOP ISOLATOR SERIES

Video ground loop isolator are passive devices which reduce Ground loop interference with CCTV signals and can easily install in a new or added to existing systems. It is useful where a video signal is transmitted via cable between points with different ground potentials (Differences in ground potentials are typically caused by unbalanced power line loads.

C-GLI	High Performance video ground loop isolator
C-DVRB	DVR Balun

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TERMS & CONDITIONS

1. Application

These conditions apply to all sales of goods by CBC (Europe) Ltd., ("CBC") to any purchaser ("the Buyer") and shall apply in place of and prevail over any terms and or conditions contained or referred to in the Buyer's order or in correspondence or elsewhere or implied by trade custom practice or course of dealing unless specifically agreed to in writing by CBC and any purported provisions to be contrary are hereby excluded or extinguished.

2. Quotations

A quotation by CBC does not constitute an offer and CBC reserves the right to withdraw or revise such quotations at any time prior to its acceptance of the Buyer's order.

3. Prices

Prices quoted are exclusive of Value Added Tax. Suggested Retail Prices (SRP) on the current price list are provided only as a guide to assist Dealers. Prices charged shall be those ruling at date of invoice. Quantity rates shall apply only to each individual order placed for one delivery. Successive orders cannot be added to gain improved quantity rates, unless otherwise agreed. CBC shall have the right at any time to withdraw any discount from its normal prices and/or to revise prices to take into account increases in costs.

4. Delivery

(a) Delivery dates mentioned in any quotation acknowledgement of order or elsewhere are approximate only and not of any contractual effect and CBC shall not be under any liability to the Buyer in respect of any failure to deliver on a particular date or dates.

(b) Delivery shall be made by the method of CBC choice as stated on the face of CBC's quotations. CBC may charge for delivery other than at its premises.

(c) The Buyer shall inspect the goods on delivery for any obvious damage or shortage.

(d) If the Buyer refuses or fails to take delivery of the goods tendered in accordance with the contract or fails to take any action necessary on its part for delivery and/or shipment of the goods, CBC shall be entitled to terminate the contract with immediate effect, to dispose of the goods as CBC determines, and to recover from the Buyer any loss and additional costs incurred as a result of such refusal or failure.

(e) Unless otherwise expressly agreed CBC may effect delivery in one or more installments. Where delivery is effected by installment, each installment shall be treated as a separate contract.

5. Payment

All invoices are strictly nett and are payable in full by the due date as shown on the invoice. Any extension of credit allowed to the Buyer may be charged or withdrawn at any time. Interest on overdue amounts shall be payable at the rate of [3]% over Barclays Bank PLC base rate to run from the due date for payment until receipt of the full amount.

6. Title of Goods

All goods are supplied to the Buyer by CBC on the following terms:

(a) until CBC has been paid in full for goods contained in the order and any other sale contract between CBC and the Buyer the products comprised in the order shall remain CBC's sole property as legal and equitable owner (although the risk therein shall pass to the Buyer immediately upon delivery of the goods).

(b) until such payment as aforesaid the Buyer shall hold the goods solely as bailee for CBC and in fiduciary capacity and shall keep them clearly identified as the property of CBC.

(c) until such payment as aforesaid CBC reserves the right to repossess re-sell or trace the products at any time from the Buyer. CBC its servants and agents are hereby granted an irrevocable right and license to enter the Buyer's premises during normal business hours. This right shall continue to subsist notwithstanding the termination of the contract for any reason.

(d) subject to the terms of this contract, until payment as aforesaid the Buyer is licensed by CBC to process the goods in fashion as it may wish and/or to incorporate them in or with any other product or products subject to the express condition that the new product or products or any other chattel whatsoever containing any part of the said goods shall become the sole and exclusive property of CBC and shall be separately stored and marked so as to be identifiable as being made from or with the goods which are CBC's property.

(e) until payment as aforesaid should the Buyer have passed the product to a third party (or have incorporated them in work for a third party) this will be deemed to have been done as CBC's agents only and any sums received by the Buyer in respect of such products or such work shall be held in trust for CBC until all sums due to CBC are discharged.

(f) all costs occasioned in the recovery of product pursuant to this Condition shall be paid by the Buyer.

7. Guarantee

Where the products are covered by guarantee, the terms of such guarantee shall be deemed to be part of these conditions. CBC's guarantee applies only to the first customer purchase from CBC or its dealers. In particular but without prejudice to the general provisions of this condition no responsibility is assumed for consequential damage whether under such guarantee express or implied.

8. Returns

No returns are permitted without CBC's prior consent, in the case of CBC's accepting the return in writing of the products, the products must be returned to CBC within fourteen (14) days of invoice date, stating relevant invoice number. Re-stocking charge of 10% of the invoice value of the product will apply but a higher rate will apply if re-packing or re-cartoning is necessary.

9. Claims

(a) CBC shall not be liable to the Buyer:

(i) for shortages in quantity delivered or non-delivery unless the Buyer notifies CBC of any claim for short or non delivery within (5 or10) days of the invoice date respectively.

(ii) for damage to or loss of the goods or any part thereof in transit (where the goods are carried by CBC's own transport or by a carrier on behalf of CBC) unless the Buyer shall notify CBC any such claim within five days of invoice date of the goods or the scheduled date of delivery whichever shall be the earlier.

(iii) for defects in the goods caused by fair wear and tear, abnormal conditions of storage or use or any act neglect of default of the Buyer or any third party.

(iv) for other defects in the goods unless notified to CBC within (1) month of receipt of the goods by the Buyer or where the defect would not be apparent on reasonable inspection within (12) months of delivery.

(b) (i) where liability is accepted by CBC under paragraph (A) above CBC's only obligation shall be at its option to make good any shortage or non delivery and/or as appropriate to replace or repair any goods found to be damaged or defective and/or to refund the costs of such goods to the Buyer.

(ii) CBC's aggregate liability to the Buyer whether for negligence, breach of contract, misrepresentation or otherwise shall in no circumstances exceed (the cost of the defective, damaged or undelivered goods which give rise to such liability as determined by nett price invoiced to the Buyer) in respect of any occurrence or series of occurrences.

(c) If the Buyer fails to give notice or to report in accordance with this condition or shall deal with the goods in any manner or if there shall be any conduct by the Buyer inconsistent with the rejection of the goods then the goods of the quality and quantity specified in the contract shall be deemed to have been delivered to the Buyer.

(d) Subject to the foregoing all conditions, warranties and representations expressed or implied by statute common law or otherwise in relation to the goods are hereby excluded and CBC shall be under no liability to the Buyer for any loss, damage or injury direct or indirect resulting from defective material faulty workmanship or otherwise howsoever arising or whether or not caused by the negligence of CBC its employees or agents PROVIDED THAT CBC shall accept liability for death or personal injury caused by its negligence.

(e) CBC's prices are determined on the basis of the limits of liability set out in this condition. The Buyer may by written notice to CBC request it to agree a higher limit of liability provided insurance cover can be obtained therefore. CBC shall effect insurance up to such limit and the Buyer shall pay upon demand the amount of any or all premiums. In no case shall the Buyer be entitled to recover from CBC more than the amount received from the insurers.

(f) No claim or rejection properly made pursuant to these conditions of Sale in respect of any part delivery of Products shall be grounds for cancellation of the remainder of the contract or order.

10. Right of Cancellation/Insolvency And Default

Should the Buyer fail to meet his obligations or if the Buyer enters into a deed of arrangement or commits an act of bankruptcy or compounds with his creditors of if a receiving order is made against him or if (being a company) an order is made or a resolution is passed for the winding up of the Buyer (otherwise than for the purposes of amalgamation or reconstruction previously approved in writing by CBC) or if a receiver is appointed to any of the Buyer's assets or undertaking or if circumstances arise which entitle the court or a creditor to appoint a receiver or manager or which entitles the court to make a winding up order or if the Buyer takes or suffers any similar analogous action in consequence of debt or commits any breach of this or any other contract between CBC and the Buyer, CBC may without prejudice to any of its other rights stop any goods in transit and/or suspend further deliveries and/or by notice in writing to the Buyer terminate the contract.

11. Waiver

Failure by CBC to exercise or enforce any rights hereunder shall not be deemed to be a waiver of any such right nor operate so as to bar the exercise or enforcement thereof at any time or times thereafter.

12. Notices

Any notice hereunder shall be deemed to have been duly given if sent by pre-paid first class post, telex, fax or telegraph to the party concerned at its last known address. Notices sent first class post shall be deemed to have been given (7) days after despatch and notices sent by telex, fax or telegraph shall be deemed to have been given on the date of despatch.

13. Law of Contract

All contracts between the Buyer and CBC shall be governed and construed in accordance with the laws of England and the parties hereby submit to the jurisdiction of the English Courts.